AIR POLLUTION IN THE MARIETTA-PARKERSBURG AREA— A CASE HISTORY

INTRODUCTION

The Ohio River Valley is one of the naturally scenic regions of the United States. It is noted for its pastoral scenes and historical river communities, and is favored with an abundance of low-cost electrical energy, an unlimited water supply, plentiful transportation, and, near the populous areas, an extensive labor force. As a result, industrial development in the Mid-Ohio Valley is expanding at an accelerating pace. Unfortunately however, air quality has deteriorated as industry has blossomed.[1]

The Marietta, Ohio-Parkersburg, West Virginia area is a prime example of the increasing industrial activity and the effect that industrial emissions have on the health and welfare of the local residents. This area, sandwiched between Washington County, Ohio on the north and Wood County, West Virginia on the south, has air quality very much like the little girl with the curl in the poem; when it is good it is very, very good and when it is bad it is miserable. Like most areas with an air pollution problem the gravity of the situation is affected to some degree by factors external to industrial emissions, such as topography and climatology.

Of course, the most obvious topographic feature of the area is the Ohio River Valley. It averages one to two miles in width, although it is a little wider in the Marietta-Parkersburg area because of the intersecting river valleys. The river itself accounts for a sizeable portion of the valley floor. On either side of the flood plain, hills rise 200 to 400 feet above the river. Topographically, then, the area is like a shallow basin in which polluting emissions would tend to collect unless dispersed by the weather.

The area lies near the path of the extensive cold season storm systems that move eastward across the U.S. Air pollution concentrations during the passage of these storms are usually low since the winds accompanying the storms effectively mix the pollutants through a considerable depth of the atmosphere. Also, precipitation produced by the storm washes contaminants from the air. During the warmer months, storms occur less frequently and light winds and nighttime inversions are more frequent. This is because of the high pressure cells which influence the area causing the fair skies and light winds and consequently the poor mixing and dispersion of pollutants.[2]

That Marietta-Parkersburg has a pollution problem, cannot be disputed. The problem is caused by the relatively vast industrial complex that domi-

[1] *Technical Report*, Parkerburg, West Virginia-Marietta, Ohio Air Pollution Abatement Activity, U. S. Dept. HEW, Public Health Service, March, 1967 at 1, 2. [Hereinafter cited as *Technical Report*].

[2] *Id.*

nates the area, and is aggravated by the local topography and weather conditions. But to examine the problem in more detail and to see what can be done about it, it is first necessary to take a step backward and look at the air pollution problem on a larger scale.

I. THE NATIONAL PROBLEM AND FEDERAL LEGISLATIVE HISTORY

Air pollution is not a new problem, but only a new issue. Man has been polluting the atmosphere ever since he began to use science and industry to mold his environment to suit himself. Realization of the problem has been much slower in coming. Even before public awareness dawned, however, pollution had reached dangerous levels in the air and from time to time air pollution crises occurred. There were several serious air pollution incidents in Western Europe during the middle thirties; disaster struck in this country in 1948 in Donora, Pennsylvania.[3] Most air pollution episodes occur in fall or early winter, and on October, 1948, an anti-cyclonic high pressure system with a secondary inversion and fog moved into the Monongahela River Valley and over Donora. The town of 14,000 is in the center of a heavily industrialized area containing steel, zinc, coke and wire plants. The pollution from these plants was effectively clamped into a shallow lower layer of the atmosphere. On October 28, large numbers of people fell ill with symptoms of sore throat, headache, tearing, coughing, shortness of breath and even some vomiting and diarrhea. On the 29th, seventeen of the twenty deaths connected with the episode occurred. Out of the population, 5910 persons, or 42.5%, were affected to some degree—the elderly and heart-diseased suffering the most.[4] There have been subsequent episodes in the United States: 1962 in New York City with 250 deaths, and Thanksgiving in New York in 1966, with 40-80 deaths.

The State of California and particularly Los Angeles County was the first area to pass effective air pollution control legislation, starting in 1947. Los Angeles did something that even today is rare in the air pollution field —it appropriated enough money to staff an enforcement committee. Today the city has an impressive body of air pollution precedent and a 98% conviction record against violators.[5]

Clearly a legislative approach was possible, and it was further proven that it could be successful if adequately funded and enforced. By the time of the Third National Conference on Air Pollution in 1966 it also was

---

[3] Cassell, *The Health Effects of Air Pollution and Their Implications for Control*, 33 LAW AND CONTEMP. PROB. 197 (1968).

[4] *Id.* at 201.

[5] *Hearings on S. 780 before the Subcommittee on Air and Water Pollution, of the Senate Committee on Public Works*, 90th Cong., 1st Sess., pt. 1 at 560 (1967). [Hereinafter cited as *Hearings*].

clear that the major growth trends affecting air pollution showed there was not much time left to correct the problem:

MAJOR GROWTH TRENDS AFFECTING AIR POLLUTION[6]

	1965	1980
Urban population	130 million	175 million
GNP	650 billion	1,010 billion
Motor vehicles	85 million	120 million
Energy requirements	53 quadrillion btu	79.2 quadrillion btu
Refuse production	170 million T.	250 million T.

As air pollution increases in proportion to these other factors, an increase in the incidence of bronchial asthma, chronic bronchitis and pulmonary emphysema, as well as an incremental contribution to the causes of lung cancer could be expected as direct results. Property damage such as cracking, corrosion, decomposition, weakening and discoloration can also be expected to increase. The federal government estimates the property loss to be about $65 per person on the average, and as high as $84 per person per year in highly polluted areas like Steubenville, Ohio. The national agricultural yearly loss is estimated at $500 million.[7]

The first federal legislation concerning air pollution came in 1955 when the 84th Congress passed the Air Pollution Control Act, "an act to provide research and technical assistance related to air pollution control." It was intended to supplement the Public Health Service Act, and authorized the preparation and recommendation of research programs, the encouragement of cooperative activities by state and local governments, the collection and dissemination of air pollution information, research into methods for prevention and abatement, research on specific problems at the request of the administration, and the making of grants for research. Two million dollars was authorized for these programs.[8] No further legislation was passed until 1963, but in 1958 President Eisenhower acted by executive order to end pollution coming from federal operations, and in 1962 the Surgeon General reported on "Motor Vehicles, Air Pollution and Health."

In 1963 Congress passed the Clean Air Act,[9] which expanded the research and development aspects of the 1955 act and authorized in addition: development of air quality criteria for the guidance of the states in their own programs; grants to state, local and regional agencies for actual air pollution control efforts; limited participation of the federal government in abatement of inter-state problems, and in intrastate problems by request

---

[6] Public Health Service, Department of Health, Education and Welfare, Proceedings: The Third National Conference of Air Pollution. (Public Health Service Pub. No. 1649). 560. [Hereinafter cited as PROCEEDINGS].

[7] Reitze, *Environmental Protection: The Ohio Problem*, March, 1970. (Unpublished article, on reserve in the Ohio State University law library).

[8] Statutes at Large, Pub. L. 84-159 (1955).

[9] Statutes at Large, Pub. L. 88-206 (1963).

of the state concerned; and new research and development in the areas of fuel desulfurization, air pollution control prototype installations, and automobile emission controls. Several abatement proceedings were actually undertaken with the provision in this law, but the law lacked teeth and the proceedings dragged on. The proceedings in the Marietta-Parkersburg area were initially of this type, and although the area was designated an air quality control region in October, 1970, pursuant to the Air Quality Act of 1967, the abatement proceedings under the 1963 legislation will continue to be administered concurrently.[10]

Amendments to the Clean Air Act of 1963 were passed in 1965 and 1966. The Secretary of the Department of HEW was directed to set automobile emission standards to become effective with model year 1968. Also, HEW was authorized to hold conferences in areas where air pollution was expected and to issue advisory recommendations for these areas, and to take abatement action in cases of international air pollution conditions.[11] The 1966 amendment to the 1963 act authorized federal grants for the operation and maintenance of air pollution control organizations, to supplement the earlier authority to aid state and local governments to establish these organizations.[12]

This brings us to the most recent federal legislation, the 1967 Air Quality Act. But before the procedures under this act are discussed, we will return the focus to Marietta-Parkersburg and examine in detail the abatement activities that have occurred there under the 1963 Clean Air Act.

II. Federal Abatement Activity: The Marietta Problem

A. *Introduction*

The initial efforts directed against the air pollution problem in the Marietta-Parkersburg area were made in 1951 by a local Citizens Committee for Control of Air Pollution. The offending industry was at that time the Union Carbide Plant situated about five miles downstream from Marietta, on the Ohio side of the river.[13] A study report made with the cooperation of plant officials and the Smoke Abatement Committee of the Bituminous Coal Producers, brought about the installation of dust control equipment to reduce the smoke, dust and sulfur dioxide being emitted from the boiler stacks. This installation was made in 1954.[14]

In the next ten years Union Carbide expanded its facilities to include

---

[10] Interview with L. J. Schramm, Secretary of the Ohio Air Pollution Control Board, December 4, 1970.

[11] Statutes at Large, Pub. L. 89-272 (1965).

[12] Statutes at Large, Pub. L. 89-675 (1966).

[13] *Technical Report*, *supra* note 1 at 3.

[14] *Id.*

eleven furnaces and a power generating steam plant burning coal from Union Carbide's own local fields. In 1964, acting on the complaints of local residents, the Washington County Health Department notified the Ohio Department of Health that Union Carbide was producing a major air pollution nuisance in the form of a heavy sooty dustfall. At about the same time the West Virginia Air Pollution Control Commission also notified the Ohio Department of Health as to complaints received by West Virginia citizens affected by dustfall from the Union Carbide plant.[15] (Note that while Union Carbide is not the only polluting industry in the area, it is accused of being the most flagrant offender, and therefore will be the "target" company in certain areas of this discussion.)

At that time the Secretary of HEW had the authority to initiate air pollution abatement action if he had reason to believe that the pollution was being carried interstate, *i.e.*, the pollution generated in one state was affecting the citizens of another state. This authority was established in the Clean Air Act under the commerce clause power of the U. S. Constitution.[16]

B. *What Is An Abatement Region?*

The initial step under the abatement action procedure prescribed by the Clean Air Act, was to designate Marietta-Parkersburg an *Abatement Region*, as opposed to an *Air Quality Control Region*. The latter term refers to procedures under the 1967 Air Quality Act. The abatement region proceedings were administered as follows:

First, an initial conference of affected states or local agencies was called by HEW. At this conference technical reports on the pollution problems were presented and analyzed, and recommended abatement measures were approved by HEW. Then, if no remedial action was taken by the state within six months, a special hearing board was convened to establish abatement measures. Finally, if the alleged polluter failed to comply with the hearing board's recommendations within six months, an abatement action was started in federal court.[17]

1. The initial conference

In the case of air pollution alleged to endanger health or welfare in any interstate, state or local situation, HEW must first call a conference of affected state or local agencies.[18] This was done by the Secretary of

---

[15] Introduction, Parkersburg, West Virginia-Marietta, Ohio, Interstate Air Pollution Abatement Conference, March, 1970, U. S. Department of HEW [Hereinafter cited as Conference, March, 1970].

[16] Clean Air Act, Pub. L. 88-206 (1963).

[17] *Id.*, Section 108 (D), (E).

[18] *Id.*, Section 108 (D) (1) (c).

HEW on November 17, 1966, for the Parkersburg-Marietta area. HEW convened the conference at Vienna, West Virginia on March 22, 1967. Such a conference can also be initiated by request from the governor of a state, a state air pollution control agency, a municipality (with the governor's concurrence) or by HEW itself in appropriate cases. The conferees consist of the interstate, state, and local agencies concerned, but there are no industry representatives unless they are invited by one of the agencies.[19] Thirty days notice of such a conference is required of HEW, and HEW is also required to make available a federal report at the time of the notice. This report is to define the matters coming before the conference, including pertinent data and any recommended conclusions or findings by HEW. Interested parties must be given an opportunity to present their views at the conference on this report, and a transcript must be kept.[20]

After the conference HEW prepares and furnishes to the agencies a summary of conference discussions on 1) the occurrence of air pollution subject to abatement under the act, 2) the adequacy of abatement measures taken, and 3) the nature of delays, if any, being encountered in abating the pollution.[21] Also, if HEW believes at the end of the conference, or thereafter, that effective progress towards abatement is not taking place it recommends necessary remedial action to appropriate agencies.[22]

2. Reports

In connection with any such conference HEW may require any person causing or contributing to pollution to file a report on the alleged pollutant emissions in question and any control devices being used. After the conference has been held, similar reports may be required as the conference might recommend. No processes constituting trade secrets need be divulged, and all information reported is considered confidential. Failure to file any such report subjects the person in default to a penalty of $100. (Note that this section was invoked against Union Carbide in regards to a 1969 conference, when that company refused to submit its emission standards.)[23]

3. Special Hearing Board

If appropriate remedial action is not taken within six months after HEW's recommendations, HEW can call a public hearing before a special hearing board appointed by the Secretary. This board consists of repre-

[19] *Id.*, Section 108 (D) (1) (2).
[20] *Id.*, Section 108 (D) (2).
[21] *Id.*, Section 108 (D) (3).
[22] *Id.*, Section 108 (E).
[23] *Id.*, Section 108 (J) (1).

sentatives selected by the affected states, HEW, other federal agencies and any interstate agency—with HEW not to have a majority. The hearing is held at one or more of the places where the alleged pollution originates after at least three weeks notice to the affected agencies and the polluter. Those interested are to be given a reasonable opportunity to present evidence. The hearing board then makes findings as to the alleged pollution and any progress towards abatement, and may recommend suitable abatement measures if necessary. These findings and recommended abatement actions are sent by HEW to the alleged polluters and the affected agencies.[24]

4. Court Abatement Action

If the alleged polluter fails to comply within six months (or a longer period specified by HEW), HEW may ask the United States Attorney General to bring an abatement action in federal court in the case of interstate air pollution.[25] If the pollution is limited to a single state, such federal court action may be taken only if the state so requests; or the state may request federal assistance in bringing a state abatement action.[26]

C. *Proceedings In The Marietta Area*

Consequently the initial discussions of the area began in September, 1965, under the supervision of the U.S. Public Health Service and pursuant to the Clean Air Act of 1963. The results of these discussions were the establishment of an air quality sampling network and the acquisition of air quality data for the area. The results and conclusions obtained from this data are reported in Appendix I.

These results made up the technical report that was provided for the participants of the March 22, 1967, Parkersburg-Marietta Interstate Air Pollution Abatement Conference held in Vienna, West Virginia.[27] The purpose of the 1967 Conference was to study the technical report and to decide on "recommendations" to be made to the states concerned. These recommendations, when approved by the Secretary of HEW, are to be acted upon by the states within the time limits set down by the Act.

Following the presentation of data and information by the conference participants and others who had requested the opportunity to appear, the participants set forth their conclusions and recommendations considered to be pertinent to the air pollution abatement needs of the area. The recommendations were based on data showing that air contaminant emissions from industrial operations and solid-waste disposal practices, because

[24] *Id.*, Section 108 (F) (1).

[25] *Id.*, Section 108 (G) (1).

[26] *Id.*, Section 108 (G) (2).

[27] *Technical Report*, *supra* note 1.

of inadequate source control and unfavorable meteorological and topographical conditions for dilution and dispersion of pollutants, resulted in excessive levels of pollution which endanger the health and welfare of persons in Vienna, West Virginia, and other residents of the bi-state area.[28]

These recommendations were not signed by the Secretary and therefore never acted upon. The reasons given by the Secretary of HEW for withholding approval were based upon disagreements with the recommendations voiced by certain conference participants. While it was felt that unanimous agreement with the recommendations was not a prerequisite to their adoption, the Secretary evidently decided that the divergent viewpoints should be reconciled for effective implementation of the recommendations. Therefore, he withheld his approval in favor of reconvening a second conference.

The disagreements expressed against the recommendations, were voiced primarily by the executive officers of the air pollution control agencies of the two states:

1. Mr. Carl G. Beard II, Executive Secretary of the West Virginia Air Pollution Control Commission expressed concern that the rigid compliance period was not realistic for all industries in West Virginia and would create hardship for some. He suggested an alternative plan, such as a phased program of compliance.

2. Mr. Jack A. Wunderle, of the Ohio Air Pollution Control Board, stated reservations to both the time period for compliance and the limitations established in the recommendations.

Other reasons given by the Secretary of HEW for withholding his approval and for favoring a reconvening of the conference were:

1. Dr. Emmett V. Arnold, Director of Health, Ohio Department of Health requested that the recommendations be delayed until "investigative, inquisitive research and evaluation study can be conducted to form the basis for such recommendations."

2. Substantial unresolved differences existed between emission data supplied by the Union Carbide Corp. and that developed by the National Air Pollution Control Administration (NAPCA), the agency that carried out the original technical studies.

3. The Attorney General of West Virginia raised questions as to the procedure of implementing the conference recommendations.

4. New complaints of air pollution problems not covered in the scope of the 1967 conference were brought to the attention of NAPCA and the states of Ohio and West Virginia in April of 1968.[29]

For these reasons, as explained above, the recommendations were not

---

[28] *Id.*

[29] Parkersburg, West Virginia-Marietta, Ohio, Air Pollution Abatement Activity, *Supplemental Technical Report*, U.S. Dept. HEW, September, 1969 [Hereinafter cited as *Supplemental Report*].

approved and put into effect, in favor of convening a second abatement conference. This second conference was eventually convened in October of 1969.

D. *Local Reaction and the 1969 Abatement Conference*

The subject "air pollution abatement" is likely to elicit mixed feelings from the residents of areas such as Marietta and Parkersburg. On the one hand, the vast local industries are pouring their emissions into the sky, adversely affecting the health and property of the local populace, and upsetting the ecological balance that has evolved in the plant kingdom. Witness the statement of Abraham J. Hindawi, Ph.D., NAPCA, speaking of the effect of air pollution on vegetation grown in the abatement area:

> In the summer of 1969 three field surveys were made of plant damage. Chlorine damage was extensive in the area of the Amax plant in Washington, W. Va. Tops of corn leaves were bleached, maple leaves dropped early, and scattered brown spots and leaf drop occurred on tomato and privet hedge plants. There was damage from sulfur dioxide northeast and southeast of the Union Carbide factory on peach, dogwood and grapevine.[30]

A Vienna, W. Va. housewife stated at the 1969 abatement conference:

> Vienna's first experience with air pollution was in 1952, at which time the Union Carbide's electro-metallurgical plant, about 2 or 3 miles to the north of Vienna—in Ohio—was placed in operation. I shall never forget the first morning when I saw our clean Ohio Valley enshrouded with a plume of reddish and gray smoke or smog that brought visibility almost to zero. We were all deeply disturbed and began immediately to trace its origin.[31]

On the other hand, the industries have also poured vast amounts of money and resources into these areas. Without them, large numbers of local residents would be left without jobs. While abatement does not necessarily mean shutting down the offending operation, this idea can be used as a lever by industrial public relation offices in putting pressure on legislatures to "go easy" on the abatement procedures. This would appear to be an effective lever, for some persons feel that, given a choice, most persons would opt in favor of keeping local industry and employment power, and apparently worry about air pollution when there is no longer any air left to breathe.[32] West Virginia Representative Kenneth Hechler made this statement during the March 1970 Senate Hearings on the Muskie Bill, S. 3229, S. 3466 and S. 3546:

---

[30] *Id.*

[31] Statement of a Vienna, West Virginia housewife, reported in *Hearings on S. 3229, S. 3446 and S. 3546 before the Subcommittee on Air and Water Pollution of the Committee on Public Works*, U.S. Senate, 91st Cong., 2d Sess., pt. 4 at 1257 (1970). [Hereinafter cited as *S. 3546 Hearings*].

[32] Interview with Reed J. Hallock, resident, Marietta, Ohio, May 8, 1970.

> West Virginia has suffered in the past from a degree of unemployment which has exceeded the national average. . . . Our efforts are centered on reversing the trend of out-migrating young people, educated in West Virginia, who are leaving the state for better jobs elsewhere. The employment picture having improved to a great extent, many West Virginia officials seem reluctant to wage an aggressive war on air pollution because of apprehension that existing industry may leave or new industry might be inhibited from establishing in West Virginia because of strict pollution controls. These views are not voiced openly, but they have conditioned the thinking and timidity toward an all-out war against air pollution with tough enforcement of controls.[33]

Marietta Mayor John Burnworth feels that the people employed by local plants are more concerned with the off-job conditions, and would be willing to bear the expense of abatement, *e.g.*, by higher electric bills, than to bear the personal financial burden of the effects of pollution on health and welfare.[34] The following petition was presented to the conferees of the 1969 Abatement Conference:

> Gentlemen:
>
> We the undersigned, all being adult citizens and residents of Washington County, Ohio—and Wood County, West Virginia area, by our signatures hereby do register our complaint of the continuing pollution of the air in the said Marietta-Parkersburg areas.
>
> The signatures on the petition should not be considered as just signatures but should be considered as a genuine expression of concerned citizens who feel that there is simply no excuse for the continued and absolutely unbridled pollution of the air by industry in our area.
>
> —2903 signatures[35]

This plea of the citizens is not only a plea against pollution but also a reaction to the ineffectiveness of the abatement proceedings up to this time, namely the 1967 Abatement Conference. Marietta Health Inspector, Ray P. Harper stated:

> The U. S. Public Health Service, the State of Ohio, and the State of West Virginia have jointly failed to assume responsibility under the Clean Air Act—namely, *to act.*

He went on to say that 98% of the air pollution sources in the area (by volume) were industrial but that all existing ordinances, corrective measures and governmental action were against homeowners, municipalities, villages and small businesses. For example, the Solid Waste Disposal Act in Ohio shut down dumps contributing 700 pounds of pollution per day, about 1/500 of the total pollution.[36]

---

[33] *S. 3546 Hearings, supra* note 31 at 1245.

[34] Interview with John M. Burnworth, Mayor, Marietta, Ohio, October 16, 1970.

[35] Petition prepared by the city government of Marietta, Ohio, on file with the Marietta Department of Health.

[36] Interview with Ray P. Harper, Director, Department of Health, Marietta, Ohio, May 8, 1970.

Perhaps the strongest voice speaking out against the abatement procedures is that of Mayor Burnworth. He stated to the conferees at the 1969 Conference:

> To me it is a disgusting waste for all of us to be here today and once again rehash basically those same items discussed here in this room March 22, 1967. While I am appreciative of the supplemental report, I can only state that it further proves there is an air pollution problem in our area . . . I cannot understand why a conference had to be reconvened merely to hear this report and again talk about a condition that has been proven to exist.[37]

Mayor Burnworth has leveled charges of "politics" at various Ohio legislators and agencies. He feels that the executive officers of the Ohio Air Pollution Control Board and the West Virginia Air Pollution Control Commission are concerned for industry, and not for the health and welfare of the people. He reported that the Director of the Ohio Department of Health requested HEW to delay final issuance of regulations "until investigations, inquisitive research, and evaluation studies could be conducted" to form the basis of such recommendations. The mayor said this showed no faith in the year of studies done before the 1967 hearings; since that time the Department of Health has not made any efforts towards such research, despite the statement by its director on May 23, 1967, to HEW that, "further studies were being made by his department and would be submitted to the Secretary in the near future."[38] Burnworth also stated that several Ohio congressmen had promised to exert influence on the Secretary of HEW and try to prevent or have modified the recommendations of 1967. One of his proposals for more efficient air quality control was to have air pollution officials removed from this type of political pressure under a civil service arrangement.[39] He feels that statewide standards should be enacted to strike at widely dispersed industries such as the Ohio Power Company, and also to avoid the problems presented by local politics when higher standards for emissions exist in one area but not in another.[40]

Charges were also leveled at Ohio politicians from the West Virginia side of the river. One member of the West Virginia Air Pollution Control Commission has complained that the "creed of Ohio is 'more jobs, let's forget about health.' "[41]

In order to more completely analyze the problems faced by pollution abaters, it may be useful to look more closely at the most complained-of polluter in the area, Union Carbide. The purpose of the following section

---

[37] Conference, March 1970, *supra* note 15.

[38] *Id.*

[39] Interview with John M. Burnworth, Mayor, Marietta, Ohio, May 8, 1970.

[40] Interview with John M. Burnworth, October 16, 1970.

[41] Conference March, 1970, *supra* note 15 at 18.

is to examine the sources of pollution produced by Union Carbide, and to see its reactions to the efforts of abatement directed against its emissions.

E. *Union Carbide*

The Union Carbide Corporation, Mining and Minerals Division, a manufacturer of ferro-alloys was in 1965, at the time of the initial technical investigations in the area, the largest emitter of both particulate matter and sulfur oxides. It still maintains first place in this area. In 1965 Union Carbide reported daily emissions of 34,000 pounds of particulate matter. The National Air Pollution Control Administration estimates in 1966 indicated emissions of 61,000 pounds of particulates daily. Also, Union Carbide produces about 95% of the sulfur oxides emitted in the area.[42]

In 1968 and 1969 the National Air Pollution Control Administration requested Union Carbide to furnish them with data concerning the emissions of particulates and sulfur oxides. This data was needed to supplement the technical reports prepared for the 1969 abatement conference by NAPCA. Union Carbide, however, did not comply with these requests. United States Representative Kenneth Hechler from West Virginia called the dealings between NAPCA and Union Carbide a "horror story." He made reference to a series of letters between NAPCA and the local Union Carbide officials, in which that agency repeatedly requested the needed data and was repeatedly "put off" by Union Carbide's refusal to comply. This refusal held back the issuance of the conference recommendations on sulfur oxides for at least a month. Eventually, according to Hechler, "federal air pollution officials decided to take the bull by the horns."[43] The Secretary of HEW "ordered" Union Carbide to present the data under the authority of Section 108 (j)(1) of the Clean Air Act as amended. In a letter dated December 31, 1969, Commissioner John Middleton of NAPCA stated to the Chairman of the Board of Directors of Union Carbide that

> your plant is the largest contributor of both oxides of sulfur and particulate matter in the conference area. Statements about your plant's emissions were based upon the best information available, since your Marietta plant manager repeatedly has refused to cooperate with us by providing the information necessary to make a full assessment of your plant's emissions. . . . [W]e require you to provide us with certain information regarding coal usage and control equipment at your Marietta plant.[44]

Representative Hechler, in his testimony at the March 1970 Senate Hearings notes that "the first glimmer of cooperation came on January 29, 1970—two days before the penalties would have been invoked under the Clean Air Act for failure to supply requested information."[45] At that

[42] *Technical Report, supra* note 1, Introduction.

[43] Marietta Times-Leader, June 6, 1970.

[44] *S. 3546 Hearings, supra* note 31 at 1256-1258.

[45] *Id.*, at 1258.

time, after two years of delay, the requested data was sent to Commissioner Middleton, along with a schedule for particulate abatement.

At the present time, according to Marietta Union Carbide plant manager, Frank V. McMillen, that company has filed all the emission reports and similar data as required by the government. He claims that Carbide is meeting the present emission requirements established by the 1969 conference, in areas where the technology exists. "Where the technology does not exist," he says, "we have offered to help develop it jointly with the National Air Pollution Control Administration for use at the Marietta plant."[46]

The technology required to remove sulfur oxides from the emissions at the coal-burning steam plant, according to McMillen and the National Research Council, does not exist.[47] Most particulate emissions from Union Carbide's furnaces, however, are successfully removed by a water-cooled cover system employing Venturi scrubbers. The particulate matter is trapped, removed from the water by a clariflocculator, and pumped to a settling pond.[48] The only problem involved with removing particulates is an economic one, for the technology here does exist.

The sulfur oxide problem is caused primarily by the fact that the Marietta Union Carbide plant burns coal with a 3-4% sulfur content. This coal is mined from Union Carbide's own nearby coal fields.[49] An obvious solution would be to burn coal with a lower sulfur content (1-2%), but as Union Carbide stated in a recent newsletter, "The one apparent way to comply with the Vienna recommendations is to burn coal with a low-sulfur content. Such low-sulfur coal is unavailable in our area."[50] This type of coal does exist in various fields in West Virginia and Pennsylvania, and once the current fuel crisis is ended, could be used at Marietta. However, to bring this coal into use at the Marietta plant at the present time would be costly and would tend to by-pass the central problem. Since approximately 44% of the national coal supply is considered to have a high sulfur content,[51] and assuming that it may eventually be necessary to have this coal rendered available for use, the main problem would appear to be a technological one. It would involve either cleaning the high-sulfur coal before it is put in use, or of removing the sulfur oxides that are emitted when the coal is burned. Both of these approaches are presently being studied by the coal-burning industries.

---

[46] Parkersburg News, October 6, 1970 at 8, col. 1.

[47] *Id.*

[48] Statement by Frank McMillan, Marietta Union Carbide plant manager, to citizens of Vienna, April 6, 1970, at 3. (On file in the office of the Mayor, Marietta, Ohio).

[49] Interview with Ray P. Harper, Marietta Department of Health, Marietta, Ohio, May 8, 1970.

[50] Ferroalloy News, Marietta, Ohio, April 23, 1970. (On file at the Marietta Union Carbide plant).

[51] Marietta Times-Leader, June 20, 1970.

Union Carbide of Marietta, in attacking the sulfur oxide emission problem, recently proposed that the necessary technology be developed jointly with the National Air Pollution Control Administration. According to Union Carbide, the plan is "designed to help solve a national problem. [It] calls for pooling our knowledge and research skills in a concerted effort to bring about the needed technology where none now exists."[52] The plan also calls for a pooling of financial resources; it proposes that half the cost of installing the needed control devices be subsidized. This provoked immediate response from West Virginia Representative Kenneth Hechler who denounced the proposal as "arrogant and insulting. Why should people have to pay to breathe fresh air?" He asked the federal government to reject Union Carbide's plan.[53] NAPCA considered the plan for several months but eventually turned it down.[54] Union Carbide has not succeeded in obtaining other federal aid in installing the control equipment, and now is faced with the abatement timetable and requirements established under the 1969 abatement conference. The question of a remedy in case of non-compliance is dealt with in the Clean Air Act. It gives the federal government power to institute legal action against the offending polluter and establishes fines to be paid for each day of non-compliance. However, some sources indicate that it would be difficult to make a case against Union Carbide in court.

Mayor Burnworth feels that while Union Carbide is the major polluter in the area, it is not the only industry with a problem. The activities of a number of companies were discussed in the 1969 Technical Report, but Union Carbide has been repeatedly accused as being the sole offender since the time of the 1967 hearings. Burnworth claims these hearings were politically motivated against Union Carbide and that the federal government was in fact discriminating against that company. He believes that if Union Carbide were closed down completely, Marietta would still have a serious air pollution problem. Perhaps more significantly, he points out that a suit against Union Carbide based on the Technical Report would probably fail because the evidence presented there is simply not sufficient. It does not show conclusively, or even beyond a reasonable doubt, the percent of damage caused by Union Carbide's emissions. Mayor Burnworth feels the attack on Union Carbide comes primarily from the West Virginia side of the river (witness Representative Hechler's statements) in an effort to protect that state's own air pollution offenders.[55]

At this point it may be useful to look at just how air survey activities are carried out and what type of information goes into a technical report.

---

[52] Parkersburg News, October 6, 1970 at 8.

[53] Columbus Dispatch, October 13, 1970.

[54] Columbus Dispatch, December 26, 1970 at 14, col. 4.

[55] Interview with John M. Burnworth, October 16, 1970.

F. *Recent Survey Activities*

Formal action was taken to reconvene the 1967 Air Pollution Abatement Conference on December 17, 1968. Consultation was held with representatives of the Ohio Air Pollution Control Board and the West Virginia Air Pollution Control Commission. At the consultation meeting it was agreed that the conference should be reopened and additional investigative activities should be undertaken to provide additional data or more refined data, which would define in greater detail the distribution and extent of sulfur dioxide pollution in the area, and to obtain basic information on the odor and irritant problems reported in the Belpre Township, Ohio and Lubeck District, West Virginia region of the abatement activity area.[56]

Relative to reopening the conference, field investigation activities were initiated by NAPCA to obtain technical data and information necessary to update and supplement that contained in the 1967 Technical Report. These activities and their objectives were as follows:

1. Additional measurements of sulfur dioxide pollution were taken through area saturation sampling using sulfation plate measurements and aerial sampling from light aircraft. Data developed by these tests were used to determine the spread of sulfur dioxide over the survey area and the transport and diffusion of sulfur dioxide emissions from large sources.

2. Updating the air contaminant emission inventory to reflect current emission quantities from the various source categories surveyed in 1966 and to determine whether significant changes had occurred in type and quantity of pollutant emissions in the two-year period since the initial survey.

3. Updating and obtaining sufficiently detailed information from Union Carbide relative to process changes, expansion of facilities, or addition of control equipment that would permit accurate assessment of current emissions.

The air pollution control agencies of the states of Ohio and West Virginia agreed to conduct additional air quality sampling in their states. The survey activities as described were initiated in January 1969 and continued through August 1969. The results of the survey efforts carried out by NAPCA are reported in Appendix III.[57] A more current inventory of air contaminant emissions for each local industry may be found in Appendix IV.

III. STATE AND LOCAL ABATEMENT LAW

A. *Local Ordinances*

Abatement ordinances in Marietta are primarily concerned with con-

[56] Supplemental Technical Report, *supra* note 29 at 3, 4.

[57] *Id.*

trol of outdoor rubbish burning and do not deal with large scale industrial air pollution.[58]

In the case of a sudden inversion crisis such as the killer smogs in Donora, Pennsylvania and London, the local civil defense organization can apply to a common pleas or municipal court judge for an injunction to shut down emitting sources.[59] However, this procedure requires a showing of facts and a court ruling before the civil defense people can act to stop emissions. An alternative course of action for the civil defense is to evacuate the area according to plans for an atomic attack.[60] Other than these emergency powers, the local governments have no power to abate air pollution.

B. *Ohio Air Pollution Law*

The Department of Health, Education and Welfare states in the Recommendations and Summary of the 1969 Air Pollution Abatement Conference that "Since neither the State of West Virginia nor the State of Ohio has air pollution regulations which deal with industrial fuel-burning and process emissions control in the Conference area, no effective legal basis presently exists to abate the air pollution in the area."[61]

Ohio air pollution control legislation is set down in the Ohio Revised Code §§ 3704.01-3704.11 and became effective in 1957, but did not provide for regulatory or control functions until 1967. The law requires the director of Health to:

(A) Maintain a laboratory to provide services necessary for the furtherance of air pollution abatements;

(B) Develop methods of study of atmospheric pollution and conduct research within the state;

(C) Advise, consult, and cooperate with other agencies of the state, the federal government, other states, interstate agencies, political subdivisions, and industries in furtherance of atmospheric pollution prevention and abatement;

(D) Encourage, participate in, or conduct studies and research relating to the prevention of atmospheric pollution;

(E) Collect and disseminate information relating to atmospheric pollution and the prevention, control, and abatement thereof;

(F) Accept and administer grants from the federal government or other sources, public or private, for carrying out any of these functions; all such monies to be deposited in the state treasury, kept by the treasurer

---

[58] Interview with Marietta Mayor John Burnworth and Health Inspector Ray R. Harper, Marietta, Ohio, May 8, 1970.

[59] Interview with Marietta Health Inspector Ray P. Harper, Marietta, Ohio, May 8, 1970.

[60] *Id.*

[61] Conference, March 1970, *supra* note 15 at 18.

of the state in a separate fund, and drawn upon by vouchers signed by the director of health.[62]

The Ohio Department of Health has authority to conduct research and advise political subdivisions, but the regulatory or control functions are performed at the state level by the Ohio Air Pollution Control Board (Board). Prior to the establishment of this board in 1967, control powers were vested solely in the local political subdivisions of the state. The Board is given the power to adopt, modify, and repeal regulations for the prevention, control, and abatement of air pollution, and to prescribe ambient air quality standards for various areas of the state. First, the Board participates in or conducts studies, investigations, and research. Then, pursuant to Section 3704.03(D), public hearings are held to establish air quality standards as mentioned above.

The most recent public hearings were held on November 23 and 24, 1970, in Columbus, Ohio, regarding the proposed regulations AP-3-01 to AP-3-05 and Ap-5-01 to AP-5-05. These regulations establish statewide ambient air standards for auto emissions (carbon monoxide, photochemical oxidants and hydrocarbons) and for industrial emissions (suspended particulates and sulfur dioxide). These standards were adopted by the Ohio Air Pollution Control Board at a meeting on December 14, 1970. The goals set for achieving these standards are July 1, 1973, for industrial pollutants, and July 1, 1974, for automotive pollutants.

Since the standards themselves are not enforceable against individual polluters, the next step involves the setting of emission standards. The Board is authorized to do this pursuant to Section 3704.03(E), by holding public hearings, similar to the ambient air standard hearings. According to the Secretary of the Ohio Air Pollution Control Board, the Board is contemplating uniform state-wide emission standards.[63] This does not follow earlier expectations and may not be supported by the spirit of the Ohio law, which implies that regional and local factors such as prevailing winds and topography are to be taken into account in setting emission standards. Nevertheless, the Board, having received an encouraging opinion from the Ohio Attorney General, intends to follow this course.[64]

The projected standards would be the same for all industries of the same size throughout the state, despite the type of plant, and the standards would be more strict for larger stationary sources than for small ones. For example, plants burning N tons of coal per day in steam boilers would be controlled to the same degree whether their product was electricity or steel; and plants burning 10 x N tons per day would be controlled more strin-

---

[62] OHIO REV. CODE § 3704.03 (1967).

[63] Interview with L. J. Schramm, Secretary of the Ohio Air Pollution Control Board, December 4, 1970.

[64] Comment of Dr. Emmet Arnold, Director of Ohio Department of Health at October 8, 1970 meeting of the Ohio Air Pollution Control Board.

gently than plants burning N tons per day.[65] These standards will be set by public hearing, but the levels suggested by the Board at that hearing will be determined by computer simulation. The computer will determine the best feasible control strategy for cleaning up the seriously polluted areas of the state, and the resultant emission standards will be applied statewide. The strategy will be the "best feasible" in the sense that it will not require the use of unavailable fuels or undeveloped technology. In the very dirtiest areas, such as the Cleveland industrial core, the standards may represent a compromise and may not actually succeed in reaching prescribed levels of air quality. On the other hand, these same standards, applied to areas now relatively clean, would achieve levels of air quality considerably better than those set by the Board.[66]

Monitoring stations and other devices designed to measure air pollution are established and operated by the Board, which also enters into contracts with public or private agencies to do the same things. These monitoring operations are to determine if the air quality standards are exceeded. If they are not, no further action to abate is taken by the state.

The next step in the process is to identify emission sources in the area. Sources of "excess emissions" must register by filing reports with the Board containing information which is reasonably available as to location, size, and height of emission outlets, and the rate, duration, and composition of emissions. Section 3704.05(G) requires those requested to submit reports, and Section 3704.06 gives the Ohio Attorney General, upon request of the Board, the power to prosecute violators of this and other provisions.

Although the Board itself cannot take action to force polluters to stop emissions, it may issue permits allowing emissions in excess of the applicable emission standards. In issuing such permits the Board must give consideration to evidence that: (1) compliance with such standards is impractical because of conditions beyond the control of the applicant, (2) compliance with such standards would be technically infeasible or economically unreasonable, and (3) the emissions of the applicant for which a permit is requested have little effect on ambient air quality because of topography, direction and velocity of prevailing winds, and other factors. The Board may order the person to whom the permit is issued to set a time table to prevent and control such emissions.[67]

In case the Board should discover that an emission regulation is being violated, it may, pursuant to Section 3704.06, request the attorney general to prosecute the violator. The attorney general then may bring an action for an injunction or other appropriate proceedings. This statute orders the court in which the action is brought to consider the physical and eco-

---

[65] Interview with L. J. Schramm, December 4, 1970.

[66] *Id.*

[67] OHIO REV. CODE § 3704.03(F) (Page 1967).

nomic feasibility of compliance in reaching its decision.[68] In comparison the National Air Quality Standards Act of 1970 specifically provides that technical and economic feasibility shall not be used as excuses for non-compliance.[69] In discussing this apparent conflict between the two laws, L. J. Schramm of the Ohio Air Pollution Control Board indicates that the provision of the National Act is in reality unenforceable. For example, he suggests that no one would require the large power plants to close down, and that equal protection considerations would require the same leniency to be extended to the smaller industries.[70]

Although the Board is the monitoring and enforcement agency under the Ohio laws the technical and monitoring staff necessary to do the job just are not available at this time, according to Schramm.[71] In this state of affairs there are two alternatives for enforcement:

(1) Greatly expanded appropriations for building up to the technical and monitoring staff on the state level, or

(2) Enforcement through local agencies within each Air Quality Control Region. Under this second alternative Cleveland's air pollution unit would expand to monitor and police the whole of Cuyahoga County and the other counties in that region as well.

There are problems with the second approach, as Schramm points out. In Cuyahoga County alone there are about 40 independent incorporated villages and towns. Cleveland would have to make agreements with each of them to permit its agents to come in and police their air. The same would have to be done with the towns in the other counties. Schramm feels that the more inter-governmental contracts there are in an organization, the weaker the organization is. Even if Cleveland would agree to take on the additional areas, it would need much more money and staffing to handle the greater work load. There would also be the problem of different monitoring and enforcement procedures between such regional organizations.

According to Schramm, the Board would prefer the first alternative for enforcement—expanded state organization. Last March, Jack Wunderle, the Board's chief engineer complained that his unit had only five engineers, including himself, and three technicians to handle the task of obtaining air samples from throughout the state and determining levels and sources of pollution. Now the Board is doubling its size—six more engineers were added to the staff prior to June 29, 1970. A technician was also added to the staff. Seven more engineers may arrive from NAPCA to work with the Ohio department.[72]

---

[68] OHIO REV. CODE § 3704.06 (Page 1967).

[69] Senate Report No. 91-1196 at 23.

[70] Interview with L. J. Schramm, December 4, 1970.

[71] *Id.*, May 7, 1970.

[72] Columbus Dispatch, May 22, 1970 at 5A, col. 5.

As of early April, 1970, the only existing regulation of the Board was AP-1-01, concerning public notice. However, on April 15, the Board announced that it had approved regulations containing air quality standards for Lawrence and Scioto Counties, becoming effective June 10,[73] and, as was noted above, on December 14, 1970, the Board adopted statewide ambient air quality standards. Note that there are at present no control regulations in effect limiting permissible emissions. However, the Board has indicated that control regulations limiting industrial emissions will be established within the first six months of 1971.[74]

The effectiveness of air pollution control law also depends on how well the air pollution control agency is funded. The Ohio legislature appropriated $250,000 for air pollution control in the year 1971. However, the allocation of these funds are contingent upon the availability of federal matching funds. Originally it had appeared that 3:1 or at least 2:1 federal matching funds would be available, the Board now indicates that there may be no federal funds forthcoming. In this case the Board would have to operate on appropriation of $50,000 from the State Emergency Fund. (The crux of the funding problem appears to lie in the fact that the federal administrators prefer to distribute the funds directly to the municipalities rather than through the state agency.)[75]

C. *West Virginia Air Pollution Law*

In contrast to Ohio law, the West Virginia Air Pollution Control Commission was created in 1961 and has authority to issue cease and desist orders to anyone violating the regulations set up by the Commission. This means that the West Virginia Commission does not need to go to the state attorney general in order to enforce its regulations. However, the Commission can request the prosecuting attorney of the county in which the polluter resides or engages in the activity complained of to apply to the circuit court of that county for an injunction to restrain violations of any final order entered by the director.[76]

The West Virginia law gives the Commission power to act in an emergency by issuing an order, with the written consent of the governor, to reduce the emissions causing the emergency situation. This emergency order may be entered and enforced without public hearing, which is required before the issuing of a non-emergency cease and desist order. As was noted above, the Ohio Air Pollution Control Board does not have this power to issue orders even in emergency situations, but would have to rely on action from local civil defense organizations.

---

[73] Columbus Dispatch, May 21, 1970, at 4A, col. 1.

[74] Interview with L. J. Schramm, December 4, 1970.

[75] *Id.*

[76] Michie's West Virginia Code §§ 16-20-6 and 16-20-9 (1967).

Both Ohio and West Virginia authorities have similar authority to issue regulations. Ohio Revised Code § 3704.03 states:

> The air pollution control board may . . . : (D) Adopt, modify, and repeal regulations for the prevention, control, and abatement of air pollution, prescribing ambient air quality standards for various areas of the state.

The corresponding West Virginia section is found in Michie's West Virginia Code, Section 16-20-5:

> The commission is hereby authorized and empowered: . . . (4) To adopt and to promulgate reasonable regulations . . . relating to the control of air pollution. . . .

The West Virginia Air Pollution Control Commission has established a number of regulations:

(1) To prevent and control air pollution for coal refuse disposal areas;
(2) To prevent and control air pollution for combustion of fuel in indirect heat exchangers;
(3) To prevent and control air pollution from the operation of hot mix asphalt plants;
(4) To prevent and control discharge of air pollutants into the open air which causes or contributes to an objectionable odor or odors;
(5) To prevent and control air pollution from the operation of coal plants and coal handling operations;
(6) To prevent and control air pollution from combustion of refuse.[77]

Also, a recent regulation has tightened the criteria on particulate emissions so as to possibly cause a temporary shutdown of the Dupont plant near Parkersburg. This fact was pointed out by a former Wood County prosecuting attorney, who also indicated that the West Virginia Commission is effective in working with industry to obtain compliance with the regulations. However, he also said that the Commission operates with a limited staff on a budget even smaller than Ohio's and that therefore policing is inadequate, and regulation violations may go unreported for long periods of time.[78]

D. *New Ohio Legislation—The Ohio Water Quality Development Authority*

One possible reason that industry resists pressures to install pollution control devices is that such installation requires a large capital investment that the companies are not interested in making. Cities having incinerators that pollute are in a similar bind. The Ohio Air Pollution Control Board is set up to recognize this problem, and as noted above, can issue

---

[77] West Virginia Admin., Regs., Air Pollution Control Commission, chapter 16-20, Series I-VI, 1965-69).

[78] Interview with William R. Pfalzgraf, Parkersburg, West Virginia Attorney, May 8, 1970.

permits to allow emissions that exceed standards if control is economically unreasonable. If industries and municipalities could get the capital necessary to install control devices, voluntary compliance with the Air Quality Act would be much more likely. The Ohio Air Quality Development Authority (OAQDA) is designed to combat this problem. Testimony before the House Finance Committee on the bill that established OAQDA has indicated that the use of a state agency which would issue tax exempt revenue bonds to finance air quality facilities could enable the facilities to be financed less expensively than if the persons who needed the facilities had to finance them themselves.[79] The OAQDA is a seven-member board authorized to construct or acquire air quality facilities through revenue bond financing or appropriations, or to effect their construction through grants or loans to governmental agencies.[80] The authority can operate the facilities itself, but will probably turn them over to local government or industries under lease or contract, or sell them.

The OAQDA is modeled after the legislation that created the Ohio Water Development Authority in 1968. As with the OWDA water pollution projects, OAQDA will have the power to engage in air pollution research or development and to receive federal funds for construction of projects or for research and development.

The air quality facilities that OAQDA will be authorized to acquire or construct are defined in § 3706.01 as "any method, process, structure or equipment that removes, reduces or renders less noxious air contaminants discharged into the ambient air." Note that the facility must remove, reduce or render the pollutants less noxious—merely measuring them will not do. Therefore local governments that are interested in setting up monitoring and enforcement agencies will not be able to get help from OAQDA. Similarly, the state's enforcement agency, the Ohio Air Pollution Control Board, which may want to set up its enforcement program through local agencies, will not be able to go to OAQDA for help, either. This may have been an oversight by the drafters of the bill, because in § 3706.04 there is language allowing the OAQDA to "make available the use or services of a project to person or governmental agencies." This authority is separate from, but in the same sentence with, authority to build and lease or contract out facilities. "Services" seems to imply monitoring rather than control.

The OAQDA has other problems. The list of things that are "air contaminants" in the definition of air pollution includes "noise."[81] This was probably intended as a progressive and forward-looking provision, but the Air Quality Development Authority seems to be a strange body to com-

[79] Report on Amended House Bill 963 by the Office of the Lieutenant Governor, State of Ohio.

[80] OHIO REV. CODE § 3706.02 (Page 1970).

[81] OHIO REV. CODE § 3706.01(C) (Page 1970).

bat noise. Another shortcoming is that OAQDA has no power to encourage or force small units of local government to work together. If air pollution is treated as a regional problem in both federal and state law, it only makes sense to treat the development of control facilities the same way. Economies of scale would also seem to dictate that municipal facilities like incinerators be built large to service several small communities.

Section 3706.03 of the bill establishing OAQDA is an important provision to assure that the facilities built will meet regional air quality standards both in their construction and their operation. It requires that any air quality project shall be determined by the OAQDA to be not inconsistent with the air quality standards applicable to the state pursuant to the provisions of § 108(c) of the Air Quality Act of 1967. A resolution of the OAQDA providing for construction of a project or making of a loan or grant must contain a finding by the OAQDA that the proposed facility will meet air quality standards. Section 3706.03 also gives OAQDA the duty to assist and cooperate with governmental agencies in achieving the conservation of air as a natural resource. OAQDA and the state's enforcing agency, the Air Pollution Control Board are both in the same department, but even this does not ensure cooperation between the agencies. If, however, cooperation and not rivalry can develop, the OAQDA's power to regulate the facilities it builds or finances would be an important supplement to the Board's enforcement powers.

The OAQDA can establish rules and regulations for the use of the air quality facilities.[82] It can also make and enter contracts and agreements with persons and units of government for the sale, rental, or operation of the facilities.[83] There is no reason why these contracts cannot contain terms designed to ensure air quality as well as to ensure the OAQDA will get its rent or interest. Finally, the OAQDA can sue and plead in its own name to enforce these contracts, and although the statute does not make this clear, it might be able to sue to enforce its own regulations.[84]

The OAQDA has its flaws and ambiguities, as noted, but it appears to be nevertheless a useful agency. It is an example of an agency that will encourage pollution abatement no matter what kind of abatement approach —regulatory/penalty, effluent fee, or even user-receptor charges—is eventually settled upon by the state and federal governments. Unfortunately, however, the OAQDA is at present a ghost agency, unfunded and unstaffed.

IV. Federal Action In The Parkersburg-Marietta Area

A. *The Overlap of Timetables*

One of the reasons the Parkersburg-Marietta area is interesting to study

82 Ohio Rev. Code § 3706.04(F) (Page 1970).
83 Ohio Rev. Code § 3706.04(K) (Page 1970).
84 Ohio Rev. Code § 3706.04(D) (Page 1970).

is that the various state and federal abatement programs have tended to overlap there. One of the products has been confusion, even for the state officials. Until October, 1970, abatement action had been taken under the 1963 federal legislation, the Clean Air Act. The area in question was designated an Abatement Region under Section 108 (d) of that law, and there were specified timetables which Ohio, West Virginia, and HEW officials had to follow in carrying out the abatement procedures. The states of Ohio and West Virginia were facing a date of September 19, 1970, by which time they had to demonstrate to HEW that remedial actions to abate the air pollution had been taken. September 19 would have been six months from the date of the issuance of the Recommendations and Summary of the Pollution Abatement Conference. At first, the Ohio Board planned to hold hearings to set air quality standards under the Ohio law, but then word leaked out that the Parkersburg-Marietta area was soon to be designated an Air Quality Control Region under the more recent 1967 federal legislation, the Air Quality Act. The assumption was that once an area was designated all abatement procedures would go back to zero and start over—that is, that the Abatement Region would die and that the state would begin compliance with the Air Quality Control Region procedures.[85] No further action was taken by the Board, although individual plants in the Marietta area began voluntarily cleaning up their emissions.

In October of 1970 HEW did designate Parkersburg-Marietta as an Air Quality Control Region.[86] In its release announcing this HEW included a surprise, however—the Abatement Region recommendations were to remain in effect. What this meant was unclear. Everyone in the state agency believed that the Abatement Region was dead; were the surviving recommendations to be used as the basis for air quality standards or for setting emission standards, or merely as a minimum level of abatement to be achieved by these methods? Finally NAPCA made it clear to the state agencies that the Abatement Region was not dead. Apparently NAPCA Commissioner Middleton's assistant director McGonnell grew up with the Abatement Region method of controlling air pollution, favors it because he feels it is a more informal and less coercive way of getting compliance, and refuses to abandon it. Therefore, when West Virginia Representative Kenneth Hechler demanded to know what progress had occurred in the area, NAPCA called another conference in Vienna, West Virginia on November 13, 1970, under the Clean Air Act procedures. The outcome of this conference was that the federal and state agencies expressed satisfaction with the voluntary compliance that had been made by the local industries. The secretary of the Ohio Board came away with the expecta-

[85] Interview with Jack Wunderle, Engineer-in-Charge, Air Pollution Unit, Ohio Department of Health, May 7, 1970.

[86] HEW News Release, Thursday, October 15, 1970.

tion that no federal action would be necessary, at least not in the immediate future, and that the Abatement Region would henceforth continue to exist but be allowed to rest quietly while abatement continued under the Air Quality Control Region procedures.[87] In this regard the Ohio agency stated at the conference that it could not guarantee the continued existence of the 1970 recommendations while it operated under the Air Quality Control Region scheme.[88]

The most recent indications are, however, that the federal government's recently formed Environmental Protection Agency may not be content to let the Abatement Region expire. The 1970 Recommendations said that Union Carbide should reduce its emissions of sulphur dioxide by 70% before April of 1972, but Union Carbide contends that it cannot reach that goal before September, 1974. If the Environmental Protection Agency should choose to make a showing of the present administration's resolve to deal with air polluters, immediate pressure could be brought upon Union Carbide through the further use of the Clean Air Act provisions, *i.e.*, more hearings. A NAPCA spokesman recently said that "Union Carbide is going to have to offer satisfaction or the obligations imposed on us by the Clean Air Act are going to force some hard decisions."[89]

The next complicating factor was the Ohio Air Pollution Control Board's decision to set statewide air quality standards. The Board took this approach because of considerations of funding and of simplicity of operation, and the promulgation of those standards came will within the timetable for state action in the Parkersburg-Marietta Air Quality Control Region. The state had ninety days from the time of the region's designation to indicate whether it would set standards, then 180 days to set air quality standards, and finally 180 more days to set emission standards and develop an implementation plan. The time in each period that is unused is not lost, but added onto the next period. The state still has until January 15, 1972, to set emission standards before the federal government will step in.

The statewide standards are a complicating factor in that they deviate from the regional approach dictated by both the state and federal statutes. For example, Union Carbide might contest in court the validity of regulations setting statewide standards on the basis that this exceeds the Board's authority. Section 3704.03(D)(2) of the Ohio Revised Code requires that the Board take into account topography, prevailing wind direction and

[87] Interview with L. J. Schramm, December 4, 1970.

[88] *Id.*

[89] Columbus Dispatch, December 29, 1970, p. 14. This stern warning seems to be taking the form of action because the EPA has required Union Carbide to reduce plant emissions by 25% before September, 1971, and by 50% before April of 1972. They further accentuated this demand by rejecting a Union Carbide proposal that called for construction of $8 million worth of control equipment, apparently because it also extended the deadlines for accomplishing control. (Columbus Dispatch, January 17, 1971, pp. 22A-27A).

velocity, physical conditions, and other factors which may affect air pollution in setting air quality standards. This directive cannot be meaningfully followed in setting state-wide standards.

B. *Explanation of Procedures in an Air Quality Control Region*

1. Initial Actions by HEW

Before states are obligated to set standards, HEW must take several initial actions, as follows:

a. Designate broad *atmospheric areas* or air basins based on meteorological and topographical factors. (Eight national atmospheric areas covering the forty-eight contiguous states were designated January 16, 1968.)
b. Designate *air quality control regions*, containing communities in one or more states, with a common air pollution problem.
c. Develop and publish *air quality criteria* for particular air pollution agents, which would describe the effect on health and welfare of varying concentrations of each agent or combination of agents in the ambient air. These criteria must reflect the best available scientific data, including views of other agencies and the advisory committees which the law requires to be established.
d. Develop and publish *recommended control techniques*—that is, the best available information on how to achieve air quality levels set forth in the criteria, including technology, effectiveness, costs, and economic feasibility of various alternatives.
e. Undertake *expanded research programs*, the results to be utilized in developing and revising these criteria and control techniques.

2. State Air Quality Standards

As soon as HEW has taken the steps outlined above, each state in the designated regions must move promptly to develop standards and controls with respect to each substance, or group, or combination of substances in the atmosphere which are the subject of HEW criteria. Each state must do the following:

a. File a *letter of intent* to set appropriate standards and controls, within ninety days after receiving HEW criteria and control information regarding any designated substance emitted into the atmosphere. [§ 108 (c) (1)]
b. Adopt, within the next 180 days, *ambient air quality standards* for the substance in question applicable to each designated air quality control region or portion thereof within the state. Standards must be consistent with HEW's criteria and control data. The state must hold a public hearing, and must consider any recommenda-

tions received from state or interstate planning agencies before adopting such standards. [§ 108 (c) (1)]

c. Adopt, within another 180 days, a *plan* on how to achieve each of the standards within a reasonable time, including emission control requirements and means of enforcement by the state. The plan may include various alternative control methods and a timetable for achieving ultimate standards within the limits of technological and economic feasibility. [§ 108 (c) (1)]

d. File the standards and plan with HEW. They will become effective when HEW finds them consistent with the act.

3. Federal Standards (if State Action is Deemed Inadequate by HEW)

If a state fails to set standards as outlined above, or if HEW deems a state's action inadequate, HEW may act to develop standards for the portion of an air quality region (or regions) within that state, as follows:

a. HEW holds a conference including representatives of all interested agencies and industries. [§ 108 (c) (2)]

b. HEW issues *regulations* setting forth air quality standards for the particular region, consistent with the HEW criteria control information. [§ 108 (c) (2)]

c. The state then has six months either to adopt state standards satisfactory to HEW or to request a hearing. [§ 108 (c) (2)]

d. If the state objects to HEW's proposed standards and requests a hearing, HEW sets up a special *hearing board*, including members selected by the states involved, to receive evidence from all concerned, including industry. The board then makes a binding final decision on the standards to be adopted. [§ 108 (c) (2)]

e. If a state fails to act within the six-month period, the standards in the HEW regulations become effective for such region or portion thereof. [§ 108 (c) (2)]

4. Enforcement of Standards; Abatement Action

Each state will normally enforce its own standards in accordance with implementation and enforcement plans approved by HEW (which must include authority to act promptly in emergencies). If a state fails to take reasonable enforcement action in cases where apparent violations are causing air quality to fall below the new standards, HEW may act, as follows:

a. Nonemergencies where standards have been adopted: HEW gives notice to local authorities and to alleged polluters. If the violation is not corrected within 180 days,

i. in a case of interstate pollution, HEW may seek abatement in a federal court; the court reviews the standards and the al-

leged violation de novo (*i.e.*, the burden of proof is on HEW);

ii. where pollution is limited to a single state, HEW may take the matter to federal court only if requested by the state, or the state may request federal assistance in a state court action.

b. Nonemergencies where there are no standards in effect under the act: HEW may use the above-described pollution abatement procedure, on its own initiative in an interstate pollution situation and at the request of the governor in an intrastate pollution situation, with modifications as follows:

i. HEW makes a report on the *problem*. [§ 108 (f) (1)]

ii. HEW calls a conference on thirty days' notice to hear the views of all interested parties. [§ 108 (f) (1)]

iii. HEW recommends any necessary *abatement measures*. [§ 108 (f) (2)]

iv. If no remedial action is taken within six months thereafter, a special *hearing board*, named by the secretary but including members recommended by the states, will be convened and will recommend any abatement measures.

v. If an alleged polluter fails to comply with the hearing board's recommendations within six months, HEW may take the matter to a federal court for a de novo hearing in the case of interstate pollution; where intrastate pollution is concerned, a federal court action is permitted only if requested by the state concerned. State action in a state court with federal assistance is also possible.

c. Emergency health situation: HEW may seek immediate federal court action to stop pollution regardless of any problems of economic or technological feasibility of controls.[90]

C. *The Bases for Setting Air Quality Standards*

Cost to a community is of great importance in deciding which of the devices or techniques available to control air pollutants will provide an acceptable atmosphere. To eliminate air pollution entirely would demand excessive expenditures of money. Therefore, the economics involved will demand that some level of pollutant be permitted in the atmosphere. That permissible level is called an air quality standard. Thus, air quality standards imply an acceptable pollutant concentration in the atmosphere enveloping a community. However, they are not intended to provide a sharp dividing line between air in which detrimental effects will never occur and air in which detrimental effects will occur. The concentration indicated as

[90] *Air Pollution Control: Symposium*, 33 LAW AND CONTEMP. PROB. 195 at 224-47 (Spring, 1968).

a standard merely represents the approximate level at which certain effects may be expected to begin to occur; or conversely, the approximate level of concentration below which the effects defined should not ordinarily occur. The maximum allowable emissions of air pollution sources are based on air quality standards. Therefore, the setting of air quality standards is the first step in evaluating available measures to control air pollution.

Community air pollution is of importance when it directly or indirectly affects the normal functions of the human body. However, it is also of importance, even when human health effects are absent, if there is detrimental effect on the normal function of the community itself. For example, effects such as damage to vegetation, injury to domestic animals, accelerated corrosion of materials, reduction of visibility, or annoyances (with or without resulting physiological effects) represent impairment to the normal function of the community. Therefore, ambient air quality standards reflect the relationship of air pollution: 1) to human health and well being, 2) to damage and injury to vegetation, 3) to damage and injury to domestic animals, 4) to damage to materials, and 5) to interference with visibility.

D. *The Bases for Setting Emission Standards*

An emission standard is a rule intended to limit the discharge of pollutants to the atmosphere and thereby achieve a desired degree of ambient air quality.[91] The desired degree of air quality is often unwritten and assumed to be a better quality than exists at present. The effectiveness of an emission standard can be evaluated on the basis of its ability to control the proper pollutant to the proper degree.

There are three basic ways emission standards are finally promulgated:

1. Emission Standards Based on Effects:
   a. Immediate Sensory Effect—This applies where the pollutant is easily recognized. An example would be odors. No specific information such as emission rates, type of materials etc. would be needed. Specifications concerning detection of the odor would be sufficient to reduce emissions.
   b. Long-term Effects—This is primarily associated with dust. Again there is no cognizance taken of the source or its rate of emission. The only point recognized is that the emitter must now allow dustfall from this source to exceed a certain quantity.
   c. Ambient Air Concentration—An allowable concentration could be used as a control regulation. This approach could be extended to

[91] Lindstrom, *Bases for Setting Air Quality Standards, Legal Aspects of Air Pollution*, U. S. Department of HEW.

such items as radioactive materials, colored or easily identified particulates or unique gases.

These three approaches are primarily applicable to single sources of pollution. When the sources are multiple, the effects more serious, the pollutant more complex, or the emitters more concentrated in industrial regions, other types of regulations must be evolved.

2. Emission Standards Based on Analysis of the Source:

The basic concept upon which this type of regulation is founded is that a practical, minimum discharge is associated with given source categories. This would include such groupings as passenger automobiles, power plants, foundries, cement plants, asphalt plants, etc. Emission standards based on analysis of the source is a fundamental approach to emission liquidation. The air quality desired is the best that can be achieved as soon as possible. In the practical case, the effects of these control measures are quickly overcome by community growth. A major weakness of this approach is the lack of direct knowledge concerning the impact of control on air concentrations.

3. Emission Standards Based on Back-Calculation from Air Concentrations:

To fit within this category the basis for the control regulation is a back-calculation from a desired air quality to an allowable emission rate. Knowing the pollutants, it is assumed that some desired degree of air quality can be established. This may take place in the form of a fixed, maximum allowable concentration or may be a conclusion-time representation. It may be an air quality standard or an arbitrary value, as the case warrants. For this discussion it makes no difference. Having established the air concentration for a pollutant, appropriate back-calculations are made to determine the allowable emission rate. This approach is applied at the present time to large-volume single sources, such as power plants, and to especially toxic single sources, such as nuclear installations. The entire system beginning with the air environment on the one hand, and plant operations on the other, is evaluated to determine how much pollutant can be emitted under various circumstances. Two aspects are generally considered for specific sources:

a. Adequate limitation to meet air quality standards close to the plant site, as determined by diffusion theory and/or experimental studies.
b. Adequate regulation in regards to the source contribution to general community air pollution when the emission loses its identity in the general air mass.

This same basis for setting a control regulation, *i.e.*, back-calculation from air quality to allowable emissions, is applicable to area-wide sources as well

as specific sources. This is the approach used in setting regulations for automobile exhaust in Los Angeles. The approach is especially important in such cases because control is expensive and difficult to engineer. Local concentrations are not generally important. Rather, concern is focused on the overall, community-wide problem, involving projections into the future and expected equipment life.[92]

E. *NAPCA'S Use of Computer Technology*

The National Air Pollution Control Agency has given a contract to a consulting firm of engineers for the purpose of developing a model "implementation plan" which can be used with certain modifications all over the United States, including the Parkersburg-Marietta area if the study is completed within the existing abatement timetable. The study is being conducted in the Cincinnati, Ohio area. Essentially, the computer will establish emission limitations, back-calculating them from ambient air quality standards, given the present and expected levels of emissions in the area.

According to Mr. L. J. Schramm, Secretary of the Ohio Air Pollution Control Board, the computer program for back-calculation is now operational and the Board is using it to develop emission standards and implementation plans for the state.[93]

Step 1. Input—The following factors are used to set up an Atmospheric Diffusion "Simulation" model:

A. Growth and Urbanization Projections,
B. Topographical and Meteorological Data,
C. Data on Sources and Emission from Sources.

From this data theoretical isopleths (iso-concentration lines) are derived into various Control Strategies Models.

Step 2. Input—Into the various control strategies models the following factors are then considered:

A. Air Quality Standards (objectives),
B. Control Techniques, Time Factors and Control Costs,
C. Formulation of Control Strategies.

The final information is then combined again with data on sources and emissions from sources and run through the Atmospheric Diffusion "Simulation" Model again.

This information determines the final output of "projected Air Quality in Conformance with Air Quality Standards" (theoretical isopleths). From the projected air quality is made a "Final Selection of Optimum Control Strategy Combination." From the optimum control strategy comes the "Emission Regulations," "Implementation Plans," "Time Tables," etc.

---

[92] Walsh, *Bases for Setting Air Pollution Control Regulations*, U. S. Department of HEW.
[93] Interview with L. J. Schramm, December 4, 1970.

A box model is used in which areas are gridded off. The amount of pollution from each industry coming out of each individual grid is measured by taking into account factors as are pointed out in step 1 *supra, i.e.*, wind direction and velocity; height of smoke stacks; quantity of various pollutant materials coming out of the plants at different heights, etc.

The computer studies will not affect the holding of public hearings which determine the air quality standards. The computer study will be used to establish emission standards. Therefore when a certain air quality standard is chosen, a predetermined emission standard which has been chosen by the computer and matched to the particular air quality standard will automatically be selected.

The importance of such a computerized emission standard program in Ohio is evident. The minimum savings will be in the cost of the deleted hearings. Perhaps the most significant benefit will be the uniformity and effectiveness of the computerized emission standards. Since the emission standards are the product of a computer, human error is avoided along with the drawbacks of the political-economic motivations which could otherwise affect the establishment of the emission standards.

It goes without saying that NAPCA's use of the computer will be a very significant factor in its enforcement of the Air Quality Act. Indeed, without computers it is doubtful that the 1967 act would be a useful pollution abatement measure. The crucial step in enforcing the 1967 legislation is moving from ambient air quality standards to emission standards. There is no simple mathematical formula for computing the latter from the former. The fact that making the crucial step in the 1967 legislation is so difficult and time consuming is the basis for much criticism of the Clean Air Act. This is discussed below.

F. *Deficiencies of the Air Quality Act*

The Air Quality Act of 1967 as it stands has three major deficiencies: (1) it has a built in five year lead time; (2) it relies on ambient air standards rather than emission standards; (3) it relies on state action despite the poor record of the states in air pollution.

(1) Representative McCarthy pointed out the time lag problem on the House floor.[94] The secretary had one year to define the apparently useless atmospheric areas, and another eighteen months to set up the air quality control regions. The regions were developed slowly and the process was only completed in October of 1970. HEW and NAPCA now must hold hearings to develop criteria for each specific pollutant, which is another time consuming process. Criteria and control techniques are issued to the state or states involved in the region, and then the states have another eighteen months to implement abatement plans. Representative Mc-

[94] 113 Cong. Rec. 30947 (1967).

Carthy also pointed out the additional delay involved in § 106(b) which required the secretary to recall criteria previously issued for sulfur oxides and to issue new ones after new hearings. He charged that this was merely a one year delay to appease the coal and oil industry.[95] Perhaps the worst aspect of this is that during the period of delay it is presumed to be fair and equitable under the 1967 Act for industry to continue to dump their waste into the atmosphere. The burden of proof of need for control for emissions is upon those who are the victims of the emissions and they do not get a chance to try to prove their facts until sometime later in the process—presumably after damage has occurred.[96]

(2) Measuring the quality of a region's ambient air—that is, the air surrounding it on all sides—is a much more difficult task than measuring the quality of a particular stack's emissions. Some writers feel that monitoring procedures are not sophisticated or extensive enough to permit such measures to be meaningful, and there is a real problem as to how monitors are to be placed to ensure the validity of comparisons. Also involved is the fact that the depth of air into which pollutants will disperse—the mixing depth—varies between the first few hundred feet in the winter and during inversions to several thousand feet in warm weather. Ambient air quality will decrease as the mixing depth decreases for any given level of emissions. Shall plants be permitted to emit more pollutants in the summer, or should one mixing depth be chosen as "standard" despite varying health considerations?

In any event, ambient air standards cannot be enforced. Specific emission standards are needed for that job. Paul E. Treusch, President of the Federal Bar Association made the following statement about the problem of moving from ambient air standards to enforceable emission standards to the Senate Subcommittee on Air and Water during the 1970 hearings on air pollution legislation:

> One problem is that of proof-of-fact. The present law requires the enforcement agency to start with the monitoring and study of 'ambient air quality' . . . which is difficult, but feasible, it then requires that the cause of specific concentrations of pollutants in the atmosphere be traced to one or more specific sources apparently as a prologue to the establishment of a plan to maintain a particular level of ambient air quality. Where emission sources are many, and meteorological phenomena are complex and undefined, whether such 'proof-of-fact' is feasible by any lawyer or engineer is a doubtful question which can only be answered after the expenditure of considerable sums and the passing of a good deal of time.[97]

Dr. Erick J. Cassel, writing on the health effects of air pollution suggests as an approach "control of emissions to the greatest extent feasible,

---

[95] *Id.*

[96] *S. 3546 Hearings, supra* note 31, pt. 4 at 1235.

[97] *Id.* at 1234.

employing maximum technological capability." He contends that technical capability is easier to determine than the health effects of a specific pollutant, and that by avoiding all the pollution it is possible to avoid, instead of avoiding the legal minimum, manufacturers will not have to worry so much about re-fitting when standards are changed. Ambient standards encourage manufacturers to try to sneak under the line, so to speak, instead of cutting emissions as far as possible.[98]

(3) The Air Quality Act places the primary responsibility for abatement with the states. It does this despite testimony before the Senate subcommittee from both HEW Secretary Gardner and NAPCA Director Middleton advising against the provision. Middleton said:

> The responsibility for developing such standards is currently assigned to State and local governments, but for many reasons it is a responsibility that many of them cannot realistically be expected to meet in full measure.[99]

Gardner told the subcommittee:

> We have been quite disappointed in the vigor with which the States have approached this problem, and there are complications in their approaching it which make it understandable, but it now appears clear that waiting for them to act is not going to get the job done.[100]

Both men said that enticing industry into a state was a conflicting goal, that state and local officials were historically unable to act until pollution reached crises levels and that federal emission standards would be fairer to both states and industry.

Even the relatively impoverished local governments have done far more in the abatement area than have the states. In 1967, with 34 states receiving federal grants, the average state per capita expenditure was 4.8c. With 107 local agencies getting funds, their average per capita expenditure was 27.9c. Ohio is an extreme example of this phenomenon. The state air pollution budget is $128,000, or 1.3c per person, while six cities in the state have larger total budgets. Steubenville spends 90.6c per capita; Portsmouth, 78c; Canton, 47c; Lorain, 42.8c; Cleveland, 31.6c; Akron-Barberton, 25.4c; and Toledo, 21.2c.[101]

Most state air pollution control boards include by statutory provision representatives of groups opposed to pollution control.[102] Ohio's Board includes, for example, the State Director of Development, a representative of industry (now filled by a Procter & Gamble engineer) and a representative from municipal corporations (presently the Mayor of Akron). In ad-

---

[98] Cassel, *supra* note 3.

[99] *Hearings*, *supra* note 5, pt. 3 at 1153.

[100] *Id.* pt., 2 at 764.

[101] O'Fallon, *Deficiencies in the Air Quality Act of 1967*, 33 LAW AND CONTEMP. PROB. 195 at 295 (Spring 1968).

[102] Air Pollution Control Act, OHIO REVISED CODE § 3704.02 (1967).

dition, the boards often lack enforcement power. Mr. L. J. Schramm, admits that the Board does not have the technical or monitoring staff to enforce standards, and that to make enforcement possible a massive appropriation would be necessary.[103]

State control boards are slow to act. Of the fourteen authorized control agencies authorized prior to 1963, six had not yet adopted standards as of December, 1966, and eight had taken an average of three and one-half years to adopt regulations.[104] Ohio follows this pattern. Standards were just set for Lawrence and Scioto counties, but industries have until July 1, 1973, to meet the standards. This is almost a six year time lag between the signing of the 1967 Act and actual abatement.[105]

Finally, state imposed penalties are low, and it often pays industries to incur the fines and keep polluting rather than spend money on control devices or buy better grades of fuel. In one state the penalty for an air pollution control official betraying a polluter's secret process was from $200 to $5,000 or two to ten years in prison; the penalty for polluting was only $50.

The federal government can move to abate pollution only after the state has failed to act or has acted inadequately, and only after a long waiting period.[106] Even then the secretary's power to abate is ambiguous. Section 108 (c) (2) authorizes the Secretary of HEW to develop air quality standards for a state if the state fails to act, but it is silent as to whether or not HEW can also promulgate and implement an enforcement plan. It might be argued that such a plan would be ancillary to the setting of standards, but what if the state did set standards, but set no implementation plans? There is no specific authority for the promulgation of a plan alone.[107]

G. *Alternatives and Proposals Concerning the Air Pollution Legislation*

Ambient air standards enforced by penalties are not the only means by which air pollution can be abated. Some of the myriad other suggestions are national emission standards, effluent fees, and user-receptor charges.

The concept of user-receptor charges is based on the fact that both the polluter and the pollution sufferer want to use the air—one to breathe and the other to dump into. Both should, in theory, pay to clean it up, just as both the polluter and the other users pay for clean water. The user-receptor idea regards air as a commodity to be paid for just like any other

103 Interview with the Ohio Air Pollution Control Board, Columbus, May 7, 1970.

104 Proceedings, *supra* note 6 at 359.

105 Columbus Dispatch, May 19, 1970 at 4a, col. 1.

106 Statutes at Large, Pub. L. 90-148 § 108(c) (1967).

107 Martin and Symington, *A Guide to the Air Quality Act of 1967*, 33 LAW AND CONTEMP. PROB. 195 at 266 (Spring 1968).

commodity. There are some difficulties in applying the concept to air, however, because this particular commodity is very mobile and carries pollutants in its stream from all over the country. This leads to real difficulty in allocating the costs to the various users and polluters. Also, people are use to free air, and legislating in this direction would not be easy.

Dr. Richard Tybout of The Ohio State University Department of Economics advocates the establishment of precedent for legal ownership of dis-commodities.[108] He believes that people who discard should have to pay for disposal—and expect to pay for it. This would put the profit motive to work at minimizing emissions and reach an economically rational level of air pollution. The problem here is whether or not an economically rational level would be a medically safe or ecologically safe level at a given level of effluent fee rates and given level of economic activity. This suggestion of effluent fees is similar to the requirement of maximum abatement, a technically and economically possible approach, advocated by Dr. Cassel, *supra.*[109]

Effluent fees have certain advantages as a regulation: they cause abatement where it does the most good per dollar, and cause the larger, more easily controlled polluters to install controls; they put the burden of inspection and decision making on industrial management, not government bureaucrats; and they provide a continuing incentive to use the best technology available to control as much of the emission as possible. The big disadvantage is that effluent fees require accurate and dependable methods of measuring and continuously monitoring discharges; all of these techniques have not been worked out yet.

Tax incentives have been suggested as a route to abatement, and in Ohio such a scheme is in effect.[110] Tax credits are appealing in that they are easy to pass through legislatures—no one lobbies against a gift. Nevertheless, control equipment bought on a tax credit is still non-profitmaking, and will be installed in minimum permissible amounts. The credit also tends to bias the economic choice of control measures against things like clean fuels or relocation.

Current legislative proposals seem to continue in the registration/penalty enforcement vein. The first serious new proposals came from President Nixon's address to Congress on Environmental Quality of February 10, 1970. "Air is our most vital resource, and its pollution is our most serious environmental problem," he said.[111] He then announced that HEW was publishing new and more stringent automobile emission standards for control of nitrogen oxides for model year 1973 and particulates

---

[108] Speech by Dr. Tybout for Earth Day, April 22, 1970.

[109] Cassel, *supra* note 3.

[110] OHIO REV. CODE § 5709.25 (Page 1963).

[111] Public Health Service, Dept. of Health, Education and Welfare, President's Message to the Congress Recommending a 37 Point Administrative and Legislative Program (1970).

in 1975. He also announced an executive order for research and development in the area of unconventional low pollution vehicles.

President Nixon then made several suggestions for legislation.[112]

(1) Automobile emission testing should be done realistically on actual samples off the production line throughout the year.

(2) The Secretary of HEW should be authorized to regulate fuel composition and additives—a step beyond registration as authorized in the current law.

(3) Revision of the Air Quality Act should be made to require the setting of national air quality standards, with the states to prepare abatement plans within one year to meet these levels.

(a) National standards would be *minimums*, with the states free to set more stringent standards.

(b) The plan should let states omit the lengthy regional standard setting hearings and move right into abatement.

(c) The plan should provide for abatement plans to cover the whole abatement area (air quality control region?) and not just one state's part of it.

(4) Federal emission standards should be set for "facilities that emit pollutants extremely hazardous to health, and for selected classes of new facilities which could be major contributors to air pollution." This suggestion is very reminiscent of President Johnson's proposals in 1967 to provide national emission standards for industries that are heavy polluters.

(5) Federal authority to abate should be provided for both intra- and interstate situations where states do not enforce standards. This appears to be a request for legislative clarification of § 108 (c) (2).

(6) Fines for failure to meet air quality standards or implementation schedules should be high—in the neighborhood of $10,000 per day.

The President's proposals were promptly presented to the Senate in the form of Senate Bill 3466, sponsored by Senator Scott and thirty-three others. The bill went to the Senate Subcommittee on Air and Water Pollution of the Committee on Public Works where it was considered along with two bills introduced by the Subcommittee Chairman, Edmund Muskie, S. 3229 and S. 3546. The subcommittee held fifteen days of legislative hearings and reported an original bill, S. 4385, in lieu of the other three bills.[113] This was the National Air Quality Standards Act of 1970, which just barely squeaked through the lame-duck Congress of 1970 and was signed by President Nixon on New Year's Eve.[114]

---

[112] *Id.*

[113] Senate Report No. 1214, 91st Cong., 2d Sess. at 1 (1970).

[114] Columbus Dispatch, January 3, 1971, p. 2.

The National Air Quality Standards Act is designed to restructure the methods available to attack the air pollution problem. The carefully worded legislation embodies some drastic new concepts, some severe new restrictions, and some heavy new responsibilities and costs. It challenges basic economic and social canons. It envisions the imposition of blunt restraints on environmentally irresponsible economic growth, land use, and automobile driving. It looks to a day when the air is so clean as to have no adverse effects, and it advances the theory that the ordinary citizen has a right to go to court and force industry and government to protect his environment.[115] The Senate committee felt that the air quality criteria documents published by NAPCA indicate that the problem is more severe and pervasive and growing faster than was generally believed and that the restructuring was therefore necessary.[116] The restructuring is aimed at the areas in which the 1967 legislation has failed. The 1967 Act showed that tests of economic and technological feasibility applied to air standards compromise the health of persons and lead to inadequate standards. Secondly, since state and local governments have not responded adequately in their role as enforcers of standards, federal presence and backup authority must be increased. Finally, since at all levels the air pollution control program has been under-funded and under-manned, greater financial commitments have to be made.[117]

Therefore, the first major restructuring in the 1970 Act is the result of the determination by the committee that (1) the health of people is more important than the question of whether early achievement of ambient air quality standards protective of health is technically feasible, (2) that the growth of pollution load in many areas would impair public health even with application of existing technology, and (3) that existing polluters should either meet the standard of the law or be closed down and new facilities should be controlled to the maximum extent feasible. It is explicit in the bill that tests of economic feasibility shall not serve as barriers to health protective standards. So, while the 1970 Act still follows in the regulation/penalty track rather than in the economic incentive one, it opens up new vistas for regulation.

The 1970 Act adds to the kinds of standards set and enforced.

1. The bill provides for national ambient air quality standards for at least ten major contaminants that must be met by national deadlines. This means that in every region of the country, air quality must be better than that level of quality which protects health. The target date is 4½ years from enactment.[118] Heretofore, states have been charged with setting such

---

[115] Conservation Foundation Letter at 1, October 1970.

[116] Senate Report No. 1214 at 1.

[117] Statement Opening Consideration of the National Air Quality Standards of 1970, at 2. (A mimeographed release by Senator Edmund Muskie).

[118] *Id.* at 3.

standards, subject to federal approval. Now this authority will be in the administrator of the Environmental Protection Agency (EPA), William Ruckelshaus. The agency which he heads was established on December 2, 1970. EPA will be the new parent administration of NAPCA (now designated the Air Pollution Control Office—APCO), which was formerly controlled by HEW. Within 30 days after enactment of the new bill EPA will propose ambient standards to cover those pollution agents for which criteria have been issued. After receiving written comments, and within 90 days, EPA will promulgate standards. For other pollutants EPA will propose standards at the same time criteria are published. States will have to meet these minimum standards but will not be limited to them.[119]

2. National air quality goals—protective against *any* known or anticipated adverse environmental effects—will be set for the major pollutants and must also be achieved within specific time frames on a national basis.[120]

3. The bill provides that newly constructed sources of pollution must meet rigorous national standards of performance.[121] This is set out as a non-degradation provision, but while it will indeed prevent industries from shopping around for open sites to set up emitting facilities, it cannot guarantee that the air in clean regions will not get worse.

Therefore, the bill would require preconstruction review of both design and location of new plants that even with new technology will affect air quality. EPA would first set up categories of new stationary sources—power plants, paper mills, refineries, etc. It could distinguish between different sizes and types of plants within categories. After standards of performance are promulgated, EPA or a state agency with EPA approval would establish procedures for certifying new sources as being in compliance. Operation of a facility without certification could be enjoined and penalized at up to $5000 per day. Operation in violation of a standard would be subject to an abatement order and, within 72 hours, a suspension of certification. There have been charges that this procedure must ultimately fail. Arch N. Booth, executive vice president of the Chamber of Commerce of the United States has said:

> Authority over new sources of emissions . . . is so broad that it would require [HEW] to review all construction plans for every new facility in the United States. Given the number of new facilities annually, the federal staffing and red tape required contains such built-in administrative delays that the measure will never work![122]

4. The new bill provides the Secretary of HEW or his successor in

---

[119] National Air Quality Standards Act, § 110(a).

[120] *Id.*, § 110(b).

[121] *Id.*, § 113.

[122] Clean Air and Water News, Vol. 2, No. 40 at 2, October 1, 1970.

EPA with the authority to prohibit emissions of hazardous substances.[123] This section is not as strong as it might be, however. It requires the secretary to prove that the emitted substance is one whose presence, chronically or intermittently in the ambient air, either alone or in combination with other agents, causes or will cause, or contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible damage to health. [Section 115 (b)] In case of violation the secretary cannot impose a fine, but is only empowered to seek an injunction or other court order.

5. The bill provides the secretary with the authority to set emission standards for selected pollutants which cannot be controlled through the ambient air quality standards and which are not hazardous substances as defined in Section 115. This provision is intended to allow control of this class of pollutants until they can be covered either by ambient air quality standards or by prohibitions as hazardous substances.[124]

The Muskie Act also will make significant changes in the methods of air pollution standards enforcement. While the act retains the current procedure under which each state must establish a workable plan to achieve ambient air standards, it adds the requirements of public hearings on the implementation plan. The state would have nine months after the promulgation of air quality standards for each pollutant to develop the plan. EPA could disapprove plans and establish plans itself. The legislation directs EPA to approve only those plans which:

1. Provide for attaining ambient air standards within three years of the plan's approval;

2. Include "emission requirements, schedules and timetables of compliance" as necessary to attain standards and goals;

3. Provide for periodic testing and inspection of motor vehicles;

4. Include "to the extent necessary, appropriate procedures, including, but not limited to, land-use and air and surface transportation controls and permits, for insuring that any source . . . will be located, operated and, for other than moving sources, designed, constructed and equipped" so as to not interfere with attaining air quality standards or goals;

5. Provide for intergovernmental cooperation in the attainment of standards and goals;

6. Provide for effective monitoring and analysis of air quality data; (Additionally, anyone owning or operating a stationary source would have to furnish periodic reports on emissions. The state agency would have to correlate these reported emissions with required standards and make a public report on this correlation. Most states do not require industries to report on emissions. Even NAPCA has to rely on cooperation from industry

---

[123] National Air Quality Standards Act, § 115.

[124] *Id.*, § 114.

to get such information. A glaring example of the problems this has caused was Union Carbide's refusal for more than two years to provide emission data on its Marietta plant.)

7. Provide for adequate personnel, funding, and authority in the state agency;

8. Provide for adequate powers for the state agency to act in cases of air pollution emergencies and for contingency planning for that eventuality.[125]

For further assurance of air pollution standards enforcement there is a provision in the act that allows citizen participation in the enforcement process. Under Section 304 of the act, United States district courts have original jurisdiction, regardless of the amount in controversy or the citizenship of the parties, to enforce or require the enforcement of time-tables of compliance, emission standards, standards of performance or prohibitions established under the federal air pollution law. Suits can be brought by any affected person against any person or governmental agencies—or against the Secretary of HEW (presumably later against the head of EPA) if he should fail to carry out his duty under the act.[126] With some exceptions, the citizen would first have to notify HEW/EPA or a state agency and give it at least 30 days to institute enforcement proceedings. As protection against frivolous suits, the bill allows the court to assess the costs of litigation to either party—a nuisance claimant would not necessarily be able to charge a nominally guilty defendant with the costs.

Section 304 (b) gives the district court the power to award costs of litigation, including reasonable attorney and expert witness fees to a successful plaintiff "when the court determines such action is in the public interest." In court districts with ecologically minded judges this provision may allow the establishment of Nader-type public interest law firms that will not need to worry about foundation grants for their continued existence. Because the air pollution program has been continually underfunded at all levels, such firms would indeed be in the public interest.

Edward F. Mannino of the Philadelphia Bar Association testified before the Air and Water Subcommittee, saying:

> In this regard, the history of enforcement of the Federal regulatory statutes in the area of trade regulation (antitrust) and securities fraud is most instructive. In both of these vital areas, Congress and the courts have long relied upon vigorous private suits as a supplement to governmental action to enforce the law, recognizing that the Securities Exchange Commission and the Department of Justice are simply too overworked and could not possibly bring all the suits necessary to enforce these regulatory statutes.[127]

Federal procurement policy is also used as a lever by the bill to ensure

[125] *Id.*, § 111.

[126] *Id.*, § 304.

[127] *S. 3546 Hearings*, *supra* note 31, pt. 4 at 1483.

compliance. Section 306 of the act makes any person or corporation who fails to comply with a court order issued under the act or who is convicted of a knowing violation of timetables, standards, or prohibitions ineligible for a federal contract for any work done at the polluting facility. Where possible, however, the ineligibility would be limited to the particular facility not in compliance, not the entire corporation. This measure relies upon cooperation from the massive federal bureaucracy after it is set in motion by a presidential executive order. Like other measures depending on executive orders—racial discrimination and economy pushes for example—success is far from assured. In addition Section 306 allows the President to exempt contracts necessary "in the paramount interest of the United States."[128]

Finally, the act makes an effort to be an effective antipollution measure by authorizing sufficient funds. However, authorization is only half the job; although $179.3 million was appropriated. For fiscal 1971, which is already well under way, the new act authorizes 200 million dollars. Over one billion dollars is authorized for the next three years. The cost figures for the three fiscal years are based on detailed cost estimates of full implementation, provided by the subcommittee so that the Appropriations Committee will know that the figures in the bill are based on reality and necessity. During Senate debate Senator Muskie issued this challenge: "If there is any doubt on the part of any Senator about whether he would support the appropriations necessary to make this law work, let him vote against the bill."[129]

The passage of the National Air Quality Standards Act will of course pose problems for the Ohio Air Pollution Control Board. The Board has neither the funding, the staff, nor the statutory authority under Ohio law to insure that the implementation plans it develops will be approved by the federal Environmental Protection Agency. If the Ohio legislature wishes to pursue air pollution abatement without federal intervention it must provide the Board with adequate money with which to operate—with no strings attached. It must provide authority to act promptly and effectively in time of air pollution emergencies. Industries must be required to provide the state agency with reports on process emissions; at present the Board can only request them. The Ohio legislature has the choice of either expanding state air pollution law to the point where it is meaningful or eventually having to cope with federal intervention in the state's economic and industrial development.

V. CONCLUSIONS

There are three facts that emerge as significant after all of this:

[128] National Air Quality Standards Act, § 306(d).

[129] Conservation Foundation Letter at 11, October 1970.

(1) As of this date there is no operative state law in either West Virginia or Ohio that controls industrial emissions, although emission standards and implementation plans are perhaps now in sight;

(2) The only controls imposed on emissions so far have been voluntary ones instituted by individual firms;

(3) For the man in the street it is very difficult to understand why a very obvious and quite serious air pollution problem in the Parkersburg-Marietta area still exists after almost 20 years of hearings, reports, monitoring, and research.

When NAPCA came back to Vienna, West Virginia for its fourth set of hearings this fall Mayor Burnworth of Marietta was so disillusioned with the federal and state agencies that he did not even bother to attend the meeting. Of course, the time has not been totally wasted. As NAPCA points out, the slow and deliberate pace so far has allowed the state and local officials to become oriented to the air pollution problem and to the administrative control agencies. Technology and concepts have become sophisticated—perhaps too sophisticated. There is even the danger, as noted above, that the whole regulatory approach is inefficient and that ultimately a different course will have to be taken.

At the moment, however, the Ohio and West Virginia control agencies are plodding through the steps of successive abatement procedures, none of which have remained static long enough so far to allow any abatement to get done. The procedures that the agencies have moved into now—the Air Quality Act of 1967 procedures—have just been supplemented and partially changed by the National Air Quality Standards Act of 1970. The agencies now must try to get the legislatures to provide them with the funds and powers that the new federal law requires.

Eventually some abatement may get done. But Lyndon Johnson in his 1966 message to Congress proposing new air pollution legislation said that if we waited ten years to act we would have lost the race against air pollution. The slow progress of abatement in the Parkersburg-Marietta area shows just how that race can be lost.

Carl J. Debevec
and
Tom H. Nagel
with
Michael J. Sherach

APPENDIX I

RESULTS OF THE INITIAL ABATEMENT INVESTIGATION INITIATED SEPTEMBER, 1965

1. Particulate air pollution endangers the health and welfare of persons in the bi-state area. Concentrations of suspended particulates measured in the three cen-

ters of urban activity and population significantly exceeded air quality objectives that have been adopted in other parts of the United States for protection of health and welfare.

2. Concentrations of sulfur dioxide observed in the survey area reached or exceeded long-term air quality objectives. Episodes of sulfur dioxide pollution were observed in Vienna, W. Va. During these episodes concentration of sulfur dioxide pollution were sufficiently high to constitute a hazard to health and welfare.

3. Substantial amounts of air pollutants are transported interstate.

4. Fluoride pollution from a glass manufacturing operation in Vienna exceeds published air quality objectives and causes severe vegetation damage in a localized segment of the study area.

5. Estimated emissions from eight point sources accounts for at least 95 per cent of total estimated annual emissions from all sources within the survey area and are so located as to have a specific and marked effect on the population. Open burning of refuse contributes to the overall air pollution burden of the area and is the cause of specific localized problems.

6. Emission control technology is available for most types of processes and operations emitting particulate pollutants in the survey area. Those sources for which there are not now fully developed control systems can reduce emissions with available technology and/or changes in operating practices. Remaining problems will yield to reasonable emissions control research and development efforts.

APPENDIX II

PARALLEL COMPARISON OF THE RECOMMENDATIONS FOR THE 1967 AND 1969 (recommendations issued March, 1970) AIR POLLUTION ABATEMENT CONFERENCE

Note that a number of similarities exist between the two sets of recommendations for refuse disposal and the control of process emissions, and in the standards for these pollution sources.

Although there are admittedly additions made to the 1969 recommendations that are not present in the 1967 ones, it would seem that in certain areas the two year delay between conferences accomplished nothing more than just that—a two year delay. This is especially so since the 1969 recommendations were issued regardless of the fact that recommendations for sulfur dioxide emissions had not yet been established. This raises the question why the 1967 recommendations could not have been at least partly implemented in the uncontested areas, and additional recommendations made as more effective data became available. Although hindsight here is certainly 20/20, this at least gives some credence to Mayor Burnsworth charges of "politics."

RECOMMENDATIONS OF THE 1967 AND MARCH, 1970 ABATEMENT CONFERENCES

1967

Recommendation I: Interstate Air Pollution Control Agency.

This Committee recommends:

A. Legislation to establish an interstate air pollution control agency which, in addition to other appropriate authority, will be provided with:

1. Authority to establish uniform ambient air quality standards for at least the two-county area involved in this abatement conference, *i.e.*, Wood County West Virginia, and Washington County, Ohio. Additional authority reasonably might be provided to authorize the interstate agency to include additional counties or to delimit as air pollution control regions other border areas in both States which share an air pollution problem, and to establish uniform air quality standards for such other regions.

2. Adequate rule-making and enforcement authority to abate, control and prevent air pollution originating in the bi-county Parkersburg-Marietta region (and in such other regions as the interstate air pollution control agency may establish) to assure the achievement of such air quality standards.

3. Authority to establish a regional enforcement agency in the Wood County-Washington County region (and in any other region established by the interstate agency), with appropriate representation of local governments, which will meet the financial resources.

4. Assurance of adequate budgetry support by the States.

5. Federal representation with the same vote as any State, in recognition of the ultimate Federal interest in, and responsibility for, quality of the air as it affects health or welfare of any persons.

1970

Recommendation I: State Cooperation, Reporting and Surveilliance.

1. The air pollution control agencies of the two States should cooperate closely in the development of air quality objectives, air pollution control regulations and enforcement procedures consistent with recommendations of this Conference.

2. The air pollution control agencies of the two States should report to the Presiding Officer and to each other, at intervals of not more than six months, beginning six months from the date hereof, concerning any source emitting to the atmosphere contaminants in excess of those recommended by this Conference, except that such reports dealing with on-site burning of domestic refuse may be made on a composite basis, rather than for an individual household. Such reports shall include the nature and quality of emissions, progress toward abatement of contaminant emissions, a description of plans with time schedules for instituting the additional control measures necessary to satisfy the recommendations of this Conference and, where applicable, a narrative description of the nature of any delays or difficulties being encountered in achieving such control. Reports for each source will continue to be submitted at the recommended interval until the State agency concerned advises the Presiding Officer that recommendations of this Conference have been met by the source.

3. The States of Ohio and W. Virginia should maintain surveillance over the sources located outside the abatement area and institute control measures, as necessary, to protect air quality in the abatement area.

1967

Recommendation II: Refuse Disposal.

This Committee recommends:

A. That salvage operations and the disposal of municipal, domestic, commercial, or industrial refuse by open burning be prohibited in the Parkersburg-Marietta interstate area. It is desirable that this prohibition become effective within six months, but in no case shall open burning be permitted later than one year after

the date of issuance of this recommendation by the Secretary of Health, Education and Welfare.

B. That any device for salvage operations or for disposal of refuse by burning emit no more than 0.2 grain of particulate matter per standard dry cubic foot of exhaust gas corrected to 12% CO_2.

1970

Recommendation II: Refuse Disposal.

1. Prohibitions against open burning of all wastes should be strictly enforced.

2. No later than one year from the date hereof, disposal of refuse or conduct of salvage operations by burning should be permitted only in incinerators from which emissions do not exceed 0.3 grains of particulate matter per standard dry cubic foot of exhaust gas corrected to 12% CO_2, or equivalent emission limits, and from which visible emissions of air contaminants to the atmosphere do not exceed that designated No. 1 on the Ringelmann Chart or an opacity which obscures an observers view to the same degree.

3. Open burning of organic chemical or other industrial wastes for the purpose of training fire-fighters should be conducted in areas outside the valley floor and in accordance with official permits issued by the air pollution control agency having jurisdiction, such permits to specify time, location and duration of burning.

1967

Recommendation III: Control of Emissions from Existing, Altered or New Power or Steam Generating Plants.

This Committee recommends:

A. That the particulate emissions from all existing, altered or new power or steam generating plants in the Parkersburg-Marietta interstate area not exceed the limits set forth in Regulation II, Chapter 16-20, series II (1966), of the W. Virginia Air Pollution Control Commission beyond October 1, 1968.

B. That all existing power or steam generating plants in the Parkersburg-Marietta interstate area not be permitted to burn fuel having in excess of 2.0% sulfur by weight beyond October 1, 1968, unless they have installed effective means to control surfur oxide emissions (calculated as sulfur dioxide) to an equivalent level.

C. That all new or expanded steam generating plants in the Parkersburg-Marietta interstate area not be permitted to burn fuel having in excess of 1.5% sulfur by weight following the issuance of this recommendation by the Secretary of Health, Education and Welfare, unless they have installed effective means to control sulfur oxide emissions (calculated as sulfur dioxide) to an equivalent level.

1970

Recommendation III: Control of Emissions from Fuel-Burning.

1. Emissions of particulate matter from all fuel-burning equipment whose energy input exceeds one million BTU's per hour should be limited in accordance with Figure 1, or equivalent, and that visible emissions to the atmosphere from such sources should be limited to a shade or density less than that designated No. 2 on the Ringelmann Chart or an opacity which obscures an observer's view to the same degree, according to the following schedule:

(a) New facilities should conform at the time of construction.

(b) Existing plants should be required to reduce particulate emissions in excess of those provided in Figure 1 by at least 50% of the excess within 18

months from the date hereof, and that full conformity with this recommendation should be achieved within 36 months from the date hereof.

2. Specific recommendations on sulfur oxide emissions from fuel-burning sources shall be deferred until the conference participants have reviewed the mandatory report which Union Carbide Corporation has provided pursuant to Section 108 (j) of the Clean Air Act. Upon completion of this review, the executive session of the conference will be reconvened for the purpose of making recommendations on sulfur oxides.

1967

Recommendation IV: Control of Process Emissions.

This Committee recommends:

A. Pollutant discharges into the atmosphere from any source in the Parkersburg-Marietta area shall not exceed a density of 40% opacity, such opacity being that which obscures an observer's view to a degree equal to an emission designated as No. 2 on the Ringelmann Smoke Chart or on the Public Health Service Smoke Inspection Guide.

B. Pollutant discharges into the atmosphere from any source in the Parkersburg-Marietta interstate area shall not cause or tend to cause injury, damage, detriment, nuisance, or annoyance to people, business, or property.

C. Within 18 months after the issuance of this recommendation by the Secretary of Health, Education and Welfare, the above limitations shall apply to all process sources in the Parkersburg-Marietta interstate area.

D. All sources shall submit written reports of progress toward accomplishment of this recommendation to the Ohio State Board of Health and the West Virginia Air Pollution Control Commission, 30 days, 90 days, and subsequently at 90-day intervals following issuance of these recommendations until compliance is reported, and shall forward a copy to the Presiding Officer of the Parkersburg-Marietta Interstate Air Pollution Abatement Conference, Public Health Service, Washington, D. C. 20201*.

* Recommendation IV is the last of the 1967 recommendations.

1970

Recommendation IV: Control of Process Emissions.

1. Emissions of particulate matter into the atmosphere from new industrial processes should be subject to the limitations set forth in Table 1, and visible emissions should be limited to a shade or density less than that designated No. 2 on the Ringelmann Chart or an opacity which obscures an observer's view to the same degree.

2. Existing industrial sources should be required to reduce particulate emissions in excess of those provided in Table 1 by at least 50% of the excess within 18 months from the date hereof, and that full conformity with this recommendation should be achieved within 36 months from the date hereof.

3. No later than six months from the date hereof, emissions of chlorine from any one plant premise should be limited to a total of not more than three pounds per hour, and because of the proximity of plants which emit gases that when combined with chlorine are believed to produce lachrymators, the concentration of any such discharge not exceed 1.5 part per million by volume.

4. No later than one year from the date hereof, the emissions of odorous and irritant materials from sources in the Southwest portion of the abatement conference area, known locally as Washington Bottom, should be abated.

1970

Recommendation V: Progress Reports.

1. Those companies named in Finding 4 (Union Carbide, B. F. Goodrich, Shell Chemical, American Cyanamid, E. I. DuPont, FMC, Ashland Chemical, Johns-Manville Fiber Glass, Amax, Marbon Chemical Division) should report in writing, at six-month intervals from the date hereof, to their respective State air pollution control agency, with a copy to the Presiding Officer, such reports to include:

(a) any changes in the nature and quantity of emissions;
(b) a description of plans, with time schedules, for controlling emissions;
(c) progress toward abatement of pollution; and
(d) where applicable, a narrative description of the nature of any delays or difficulties being encountered in achieving control.

2. This reporting requirement may be terminated by the Presiding Officer when it is determined that abatement recommendations have been achieved.

APPENDIX III

II. CURRENT INVENTORY OF AIR CONTAMINANT EMISSIONS

The emissions inventory data compiled for the Parkersburg, West Virginia-Marietta, Ohio, Abatement Activity Area in 1966 showed that large industrial point sources accounted for 98% of the sulfur oxides and 94% of the particulate emissions. In the 2-year period following the conference, new industrial development, expansion of existing plant facilities, and addition of control devices on pollution sources altered the air contaminant emissions in the area. Therefore various source categories listed in the 1967 technical report were resurveyed to determine air contaminant emissions in the general area in 1969 and changes in emissions from specific sources. Industrial plant officials were asked to furnish emission estimates or information from which estimates could be made for their present plant operations. City and county officials were recontacted to determine changes in waste disposal practices and community patterns that could affect emissions from area sources. Based on the most recent information, emission estimates for each source category were adjusted to reflect current emission quantities.

POLLUTANT EMISSIONS FROM POINT SOURCES

Emissions inventory data obtained from the 1969 industrial survey are given in Table 1. Pollutant emissions calculated for plants inventoried in 1966 are included in the table for comparing emission rates in the two periods. The more recent inventory data show 93,140 pounds per day of particulates and 339,380 pounds per day of sulfur oxides being emitted in the survey area annually by point sources. This represents an overall increase of 29% in particulate emissions and 2% in sulfur oxides emissions over emission rates estimated in 1966.

The Amax Specialty Metals Corporation has been added to the point source list on the basis of recent data. A new plant, Ashland Chemical Company, a Division of Ashland Oil and Refining Company, began operation near Belpre, Ohio, in 1959. Particulate and SO_2 emissions from the carbon black plant are not appreciable; however, quantities of sulfide gases and other sulfur compounds emitted from the process could cause localized odor problems.

Industrial operations having significant changes in emissions, whether increased or decreased amounts:

The American Cyanamid Company, an organic chemical manufacturer, showed no change in emissions in the first half of 1969, but in June 1969, the plant changed from coal to gas fuel and reduced emissions of particulate matter and sulfur oxides. Daily reduction of emissions amount to 310 pounds of particulate matter and 1170 pounds of sulfur oxide.

The Shell Chemical Company plant in Belpre Township, a manufacturer of polyisoprene and polystyrene, used more coal in steam-generating boilers in 1968 than was used in 1965. Estimates of daily atmospheric emissions in 1968 were 1470 pounds of particulate matter and 40,000 pounds of sulfur oxides. In May 1969 the plant started using coal with less ash and sulfur. Estimates of present daily emissions are 1070 pounds of particulate matter and 19,200 pounds of sulfur oxides. The use of lower sulfer coal along with modern dust-control devices, including electrostatic precipitators in the steam plant, have reduced emission. Process emissions include styrene and toluene wastes; the estimated emission of styrene is 160 pounds per day.

The Union Carbide Corporation, Mining and Minerals Division, a manufacturer of ferro-alloys, was in 1965 and is still in 1968, the largest emitter of both particulate matter and sulfur oxides in the study area. Union Carbide in 1965 reported daily emissions of 34,000 pounds of particulate matter. NAPCA estimates in 1966 based on emission data from similar refining operations indicate daily emissions of 61,000 pounds of particulate with 44,000 pounds from ferro-alloy furnaces and the balance from coal-fired boilers.

Federal requests in 1968 and 1969 to Union Carbide for additional data concerning emissions of particulate and sulfur dioxide from the ferro-alloy plant did not yield the desired data. Recently a representative of the Ohio Air Pollution Control Board, too, attempted to obtain such data from the corporation and was unsuccessful.

NAPCA estimated that in 1969 total plant emissions were 44,200 pounds per day of particulate matter. The daily emission of sulfur dioxide from fuel combustion and the ferro-alloy process in 1965 and 1968 were estimated to be 246,000 pounds.

Specific information regarding sulfur oxide emissions were procured under the authority of Section 108 (j) (1) of the Clean Air Act, as amended.

The E. I. DuPont Company, manufacturer of fluorocarbons, Nylon and other resins, and polyvinyl sheeting, in 1968 increased their consumption of coal. It is estimated that the plant emits daily 6230 pounds of particulate matter and 29,500 pounds of sulfur dioxide. Process emissions include gaseous pollutants such as formaldehyde, methylene chloride, and acetic acid.

The FMC Corporation, American Viscose Division, a manufacturer of Rayon fiber used more coal in the power facility in 1968 than that used in 1965. Estimates of daily atmospheric emissions from the entire plant are 32,800 pounds of particulate matter and 19,400 pounds of sulfur oxides. Use of lower sulfur coal in 1968 reduced the emission of sulfur oxides. Process emissions include gaseous pollutants such as hydrogen sulfide and carbon disulfide, which can create potential corrosion and odor problems.

The Borg-Warner Corporation, Marbon Chemical Division, a manufacturer of ABS plastic, uses gas fuel for generation of heat and steam and has negligible emissions of particulate matter and sulfur oxides. Process emissions include acrylonitrile and styrene, which by themselves and/or in combination with other gases from close industrial neighbors create potential lachrymators. Estimates of daily emissions are 930 pounds of acrylonitrile and 910 pounds of styrene.

The Amax Specialty Metals plant produces such metals as zirconium and hafnium in a complex metallurgical and chemical process. Emissions from the process do not have a uniform rate since many of the operations are batch and discharge intermittently at peak rates. Amax estimates 500 tons of particulate matter, which is largely silicone dioxide ($Si0_20$, is emitted from the electric arc furnace). Approximately 29 tons per year of other particulate matter is emitted elsewhere in the process. The daily peak of particulate matter is estimated at 2800 pounds. Other process operations discharge approximately 58 tons of chlorine, or about 328 pounds per day. Peak chlorine rates of as much as 45 pounds per hour were reported. The electric arc furnace contributes most of the plant emissions of particulate matter. Emissions from electric arc furnaces in similar operations have been successfully controlled in other areas by the use of fabric filters, electrostatic precipitators, and high-energy scrubbers.

The Ashland Chemical Company, Division of Ashland Oil and Refining Company, a manufacturer of carbon black, uses gas as a fuel in its power facility with no significant emissions of particulate matter and sulfur oxides. Process emissions of 592 pounds of sulfur per day are emitted as miscellaneous sulfur compounds, which are judged to be largely hydrogen sulfide and sulfur. Feed stock to the process, coke oven creosote, is about 0.86 percent sulfur. Carbon black plants analogous to this plant have reported 300 to 400 ppm of hydrogen sulfide and 200 to 400 ppm of sulfur in process effluents.

Control of hydrogen sulfide emissions can be achieved by passing the effluent through a properly designed bubble-cap tower using an aqueous amine or caustic solution as scrubbing fluid.